The American Society of Hospital Pharmacists, an affiliate of the American Pharmaceutical Association, is a national organization devoted to the profession of hospital pharmacy and dedicated to the improvement of pharmaceutical service in the interest of better patient care in hospitals.

MEMBERSHIP in the American Society of Hospital Pharmacists and the American Pharmaceutical Association is open to all practicing hospital pharmacists. With membership are included subscriptions to the American Journal of Hospital Pharmacy and to the *Journal* of the American Pharmaceutical Association, Pract. Pharm. Ed., as well as the several services of each organization.

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American Journal of Hospital Pharmacy

American Society of Hospital Pharmacists

VOLUME 15 NUMBER 6 JUNE 1958

articles

departments

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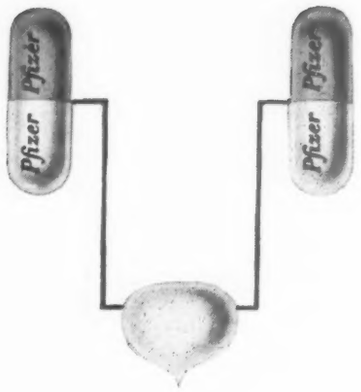

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as the president sees it—

ROBERT C. BOGASH, *Lenox Hill Hospital, New York City*

► BY NOW MOST OF YOU HAVE either seen or read the photographic and journalistic reports on the Los Angeles meeting. Generally speaking, it serves no real purpose to dig around old bones—particularly those so well covered and publicized. The "green sheets" will report our meeting in full detail.

I would, however, pass on to you some opinions formed during and after that meeting, sort of "random thoughts in retrospect."

Each year I am more impressed at the swelling number of people, many migrating from other subsections, that attend our meeting. Even more impressive to me is the large, stable audience that comes and remains for the entire session. This was evident last year in New York and emphasized again this year. I believe this proves that the program committee has discharged its obligations handsomely.

Further in this regard, I viewed with some awe and even more pleasure, the smooth flow and punctuality of our entire program. The sessions started promptly, each speaker used only the time allotted to him, all questions from the floor were answered, and each session ended on time. Yet there was no pressure; no rush of either speakers, panelists, or the participating audience. In fact, throughout the meeting the audience exhibited a decorum that complimented the program. Even now, in retrospect, I am still uncertain how Walter Frazier, that perennial master, executed this bit of magic.

Probably it is the reason that several persons in other phases of pharmacy were prompted to comment that "the ASHP sessions remind them of meetings conducted by the well-run medical societies." I imagine that we are pleased with such comment—not so much the comparison to a medical society—but that people noticed and apparently appreciated this well planned and monitored program. Program chairman and moderator Walter Frazier, his committee, the speakers, and the audience deserve commendation.

The Whitney Award dinner is always an important highlight of our meeting. It was poignantly so this year with the untimely demise of Harvey A. K. Whitney. The lecture "The Authority of Ideas," given by this year's medalist, Walter Frazier, was and shall remain a tribute to Harvey A. K. Whitney and Walter Frazier. Between chairing the program committee and being the Whitney Award recipient this has been a full and, we trust, a happy year for Walter.

In the A.Ph.A. House of Delegates there was a panel discussion on proposed A.Ph.A. membership qualifications, essentially that of making active membership available to graduates of professional courses, pharmacy, and the supporting sciences only. The proponents, Dean Linwood Tice and Calvin Berger, President, American College of Apothecaries, were contested by Louis Kazin, *Drug Topics* and Dr. George Beal, Mellon Institute. This was an animated and frequently warm debate, one which I believe was organizationally invigorating. The outcome notwithstanding—in making a point on professional pharmacy practice, Mr. Berger several times stated that such practice can be found essentially in hospitals and professional stores. Dr. Fischelis pointed out that in the A.Ph.A. structure only the ASHP and A.C.A. accept as active members only pharmacists who are active practitioners and who must be members of the A.Ph.A.

No matter what, it was pleasing to attend a discussion in which the ASHP was not represented and hear other practitioners praise hospital pharmacy as a bastion of professional pharmacy practice and organization.

The "Society Breakfast" broke from tradition and I personally prefer the old traditional manner. We did not each rise to loudly and clearly identify ourselves, nor did the past presidents sport their "wild" sport shirts. Frankly, I missed it and would call back the old, merry, catch as catch can breakfasts. We have relatively few traditions and I wonder if we should so easily let them slip away.

Finally, the work of the California Chapters and the hospitality of their members will be recalled by all and I feel certain that I speak for all who attended when I say, "thanks and well done."

It was a good meeting and to those who missed it we express regrets and say plan now for Cincinnati—

Robert C. Bogash—

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1. Kinney, J. J.: J. M. Soc. New Jersey 53:128, 1956.

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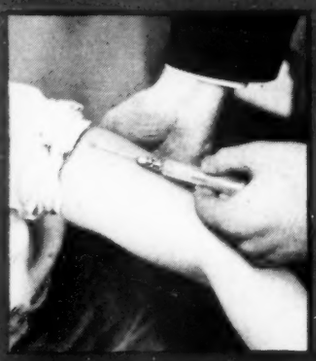

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News

Berman Receives Guggenheim Fellowship For Hospital Pharmacy Study

Dr. Alex Berman, Assistant Professor, University of Michigan College of Pharmacy, has been granted a Guggenheim Fellowship to carry on a comparative study of hospital pharmacy in France and in the United States.

Leaving this country in September, Dr. Berman will spend a year abroad pursuing research in such centers as Paris, Montpellier, Strasbourg, Nancy and Lyon. Convinced that in its current stage of growth, American hospital pharmacy can learn a great deal from the long and fruitful experience of French hospital pharmacy, Dr. Berman will study the educational, social, scientific, economic, organizational, and professional aspects of French hospital pharmacy in historical and contemporary contexts.

It is expected that this project will yield data significant to the historian of pharmacy and medicine as well as to the practicing pharmacist.

Dr. Berman received his Ph.D. in the history of pharmacy and science at the University of Wisconsin. He has worked as a hospital pharmacist with the Veterans Administration, the University Hospital in Ann Arbor, and other institutions. During 1953-54, he served as a Staff Associate at the A.Ph.A. headquarters in Washington, D. C., and in 1955-56, he was Acting Secretary of the American Institute of the History of Pharmacy as well as Assistant Professor of the History of Pharmacy at the University of Wisconsin. At the present time, Professor Berman teaches history of pharmacy and hospital pharmacy at the College of Pharmacy, University of Michigan. He has also been directing a study of pharmacy services in small hospitals in Michigan, and has published numerous papers dealing with the history of hospital pharmacy, pharmaceutical and medical Americana, and the history of therapeutics.

Dr. Schaefer Honored

Dr. Hugo H. Schaefer has been presented the 1958 J. Leon Lascoff Memorial Award by the American College of Apothecaries in recognition for outstanding service toward the advancement of the prescription practice of pharmacy. The award was presented April 21 in Los Angeles in conjunction with the Annual Convention of the American College of Apothecaries.

Born in Brooklyn, Dr. Schaefer graduated from Columbia University, College of Pharmacy in 1912. He continued his studies at Columbia and subsequently received the degrees of Ph. Ch. and Pharm. D. In 1925, pursuing his studies still further, Dr. Schaefer was awarded the Ph.D. degree from the University of Berne, Switzerland. In 1937 he became Dean of the Brooklyn College of Pharmacy, Long Island University and Dean Emeritus in 1956. He was a chemist for the New York State Board of Pharmacy from 1930-1956 and presently serves as their consultant.

Dr. Schaefer is currently treasurer of the A.Ph.A. and Chairman of its legislative committee as well as a member of the Council. In educational circles, Dr. Schaefer's contributions have been many. He is a Past President of the American Association of Colleges of Pharmacy, a Director of the American Council on Pharmaceutical Education, and of the American Foundation for Pharmaceutical Education.

A Fellow of the New York Academy of Science, he has received the honorary D.Sc. from the Philadelphia College of Pharmacy and Science and the honorary L.L.D. from Long Island University. A Remington Medalist, Dr. Schaefer has been extremely active in many of the associations of pharmacy. He is a member and Secretary of the U.S.P. Revision Committee and a delegate to the National Drug Trade Conference.

Hospital Pharmacists Share Research Grant

Nine recipients who shared the $10,000 Lederle Laboratories Research Grant to hospital pharmacy were honored recently at a dinner meeting here of the American Society of Hospital Pharmacists.

Leo F. Godley, ASHP President, cited the award winners at the Society's annual convention. They are Donald M. Friedmann, James Elieff and Calvin G. Gilliam, all of the Veterans Administration Center, Los Angeles; Gerald M. Kramer, North Glendale Hospital, Glendale, California; William M. Heller, Chief Pharmacist, University of Arkansas Medical Center, Little Rock; Paul F. Parker, Director, Division of Hospital Pharmacy, American Pharmaceutical Association, Washington; Herbert L. Flack, Chief Pharmacist, Jefferson Medical College Hospital, Philadelphia; Don E. Francke, University Hospital, Ann Arbor, Michigan; and Alex Berman, Assistant Professor, College of Pharmacy, University of Michigan, Ann Arbor.

President Godley, in announcing the $10,000 Grant winners, said, "As you know, the very generous

Lederle Laboratories Grant of 1956 was duplicated in 1957, and these funds, through the SOCIETY's Research and Development Commmittee, have been administered and apportioned to hospital pharmacists all over the country for research. I am convinced that this is one of the most important activities of the SOCIETY and we are grateful to Lederle for their confidence and support of hospital pharmacy."

Lederle Laboratories' Grant is the first such fund made available to hospital pharmacists for research.

Internship At California L.A.

The University of California Hospital at Los Angeles offers an internship program in hospital pharmacy in cooperation with the University of *Southern* California School of Pharmacy. The program leads to a degree of Master of Science in Hospital Pharmacy and takes from one to two years to complete the requirements.

There will be an opening for one intern beginning September 1, 1958. The intern is rotated through all phases of the Pharmaceutical Service, including Inpatient, Outpatient, Manufacturing, Sterile Solutions, and Pharmacy Administration. There is also opportunity to attend conferences, lectures, and seminars with medical and pharmacy personnel. The stipend, including allowances, is $185 monthly. For further information write Mr. Jack S. Heard, Chief Pharmacist, University of California Hospital, Los Angeles 24, California.

Rutgers Appoints Bogash

Mr. Robert C. Bogash, Director of the Pharmacy Department of Lenox Hill Hospital, New York City, has been reappointed by Dean Roy A. Bowers as Instructor in Hospital Pharmacy at Rutgers College of Pharmacy, State University of New Jersey. Mr. Bogash teaches an elective course in hospital pharmacy which is available to senior students. The purpose of the course is to orient pharmacy students in the specialty of hospital pharmacy practice.

► *Smith Kline & French Laboratories* reported consolidated net sales for the first three months of 1958 at $30,668,423. This compares to $27,277,299 for the first three month of 1957. Earnings of the Philadelphia pharmaceutical manufacturer before income taxes for the first quarter of 1958 totaled $10,981,196. After total estimated taxes of $5,943,742, net earnings for the first three months of the year were $5,037,454, compared to $4,668,910 for the first quarter of 1957. This amounts to $1.04 per share, compared to $.96 for the first three months of 1957.

Archambault and Godley Nominated

George F. Archambault

Leo F. Godley

Dr. George F. Archambault and Mr. Leo F. Godley were among those nominated to offices in the American Pharmaceutical Association during the recent convention in Los Angeles. Both nominees are Past Presidents of the ASHP. Dr. Archambault, Chief of the Pharmacy Branch of the Division of Hospitals, U. S. Public Health Service, was renominated for a three-year term on the Council of the American Pharmaceutical Association. He is now a member of the A.Ph.A. Council and serves as its Vice-Chairman. Mr. Godley, formerly Director of Pharmacy Service at Bronson Hospital in Kalamazoo, Michigan, and now occupying a similar position at the Harris Hospital, Fort Worth, Texas, was nominated for the office of Vice-President of the Association.

The complete slate of nominees includes:

Dr. Howard C. Newton, Boston, Mass., Dean of the Massachusetts College of Pharmacy, was one of three pharmacists nominated for the office of President of the A.Ph.A. Leib L. Riggs, Portland, Oreg. practicing pharmacist, and Thomas D. Wyatt, Spartanburg, So. Car., practicing pharmacist and secretary of that state's board of pharmacy, were also named candidates for the position.

For Vice-President, the House approved nomination of Leo F. Godley, Kalamazoo, Mich.; Howell R. Jordan, Austin, Texas; and Leroy A. Weidle, Sr. of St. Louis, Mo.

William J. Dixon, Oak Hill, W. Va.; Conrad J. Masterson, Oklahoma City, Okla.; and Paul W. Wilcox, West Point, Pa. were selected as nominees for the office of Second Vice-President.

For a seat in the Council of the A.Ph.A. these men will be offered to the membership, three to be selected: George F. Archambault, Washington, D.C.; Joseph B. Burt, Lincoln, Neb.; George E. Crossen, Corvallis, Oreg.; Robert P. Fischelis, Washington, D.C.; Nicholas S. Gesoalde, Great Neck, N.Y.; Robert A. Hardt, Nutley, N.J.; Glenn L. Jenkins, Lafayette, Ind.; Leroy A. Weidle, Jr., St. Louis, Mo.; and Carl K. Raiser, Philadelphia, Pa.;

J. Warren Lansdowne, Eli Lilly & Co., (Manager, Customer Promotion Service), of Indianapolis, Ind., was elected chairman of the House of Delegates and Calvin Berger, practicing pharmacist of New York, was named vice-chairman of the House.

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1. *Holden, W. D.; Krieger, H.; Levey, S., and Abbott, W. E.: Ann. Surg. 146:563 (Oct.) 1957.*
2. *Elman, R.: J. Am. Dietet. Assoc. 32:524 (June) 1956.*

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News

Hospital Pharmacists Win Display Awards

Robert Simons, Memorial Hospital, Wilmington, Del., was presented first prize in the Hospital and Clinics division of the American Pharmaceutical Association National Pharmacy Week competition.

First prize, a plaque, was presented to Mr. Simons for his Pharmacy Week hospital display, at the first general session of the A.Ph.A. convention at the Biltmore Hotel in Los Angeles.

Second prize went to Sister Mary Oswalda, St. Joseph's Children's and Maternity Hospital, Scranton, Pa.

Third prize was presented to J. Svihra, Jr., Perth Amboy General Hospital, Perth Amboy, N. J.

Boards Adopt Hospital Pharmacy Resolution

A resolution was adopted at the annual meeting of National Association of Boards of Pharmacy on April 21-22, 1958, which reads as follows:

"*Whereas,* the National Association of Boards of Pharmacy at its 1957 convention recommended that laws and regulations applicable to retail pharmacies, also be made applicable to hospital pharmacies, be it

Resolved, that member Boards proceed in the manner suggested by President Blanc in his address by enlisting the support of State Pharmaceutical Associations, State Associations of Hospital Pharmacists, State Hospital Associations, State Agencies and other organizations in carrying out this program to the end that the practice of pharmacy and the distribution of drugs be properly regulated in hospitals and other institutions."

Eli Lilly To Receive Remington Medal

Dr. Eli Lilly, Chairman of the Board of Directors of Eli Lilly and Company, has been selected by the Past Presidents of the American Pharmaceutical Association to become the recipient of the 1958 award of the Remington Honor Medal. Announcement of the award was made by Dr. Hugo H. Schaefer, Secretary of the Remington Medal Award Committee. The Committee of Award cited Dr. Lilly's many benefactions to American Pharmacy, American Medicine, and the public health and welfare as significant contributions to the advancement of the profession.

News

"As head of the pharmaceutical manufacturing firm which bears his name," the committee stated, "Dr. Lilly has given progressive leadership to the research, production and distribution procedures required to originate, standardize and bring to the bedside of patients the therapeutic agents of modern medicine. His patronage of the arts and sciences and his abiding interest in human welfare have marked him as a man of many accomplishments, all of which have had a beneficial influence on the standing of pharmacy among the professions in the health field."

Eli Lilly was born April 1, 1885, in Indianapolis, Indiana. He was graduated from Shortridge High School, Indianapolis, in 1904 and received the degree of pharmaceutical chemist from the Philadelphia College of Pharmacy and Science in 1907.

After his graduation in 1907, Dr. Lilly joined the company which had been founded in 1876 by his grandfather, Colonel Eli Lilly. He was a roving commissioner on efficiency until 1909, when he became superintendent of the manufacturing division. From 1915 to 1920 he was general superintendent. In 1928 he became Vice-President, which position he held until 1932, when he was elected President of the company. In April, 1948, following the death of his father, J. K. Lilly, Sr., in February, Eli Lilly was advanced to the position of Chairman of the Board of Directors. Now retired from active duties, he remains Chairman of the board.

In August, 1953, at the one hundredth convention of the American Pharmaceutical Association, in Salt Lake City, Dr. Lilly was elected honorary president of the Association.

Dr. Lilly is a member of the American Pharmaceutical Association; American Chemical Society; Indiana Historical Society (President, 1933-46); Indiana Academy of Science (President, 1938); Phi Delta Chi, professional pharmacy fraternity; American Anthropological Society; and the Military Order of the Loyal Legion of the United States. He is a Director of the American Foundation for Pharmaceutical Education, Indiana Manufacturers' Association, Indianapolis Foundation, and the English Foundation. An honorary member of Phi Beta Kappa (honored in 1939 at DePauw University), he is also a fellow of the Rochester (N.Y.) Museum of Arts and Sciences. He is a trustee of the Purdue Research Foundation and Wabash College and is senior warden of Christ Episcopal Church in Indianapolis.

His leading hobbies are archaeology, animal breeding, sailing, Chinese art, and shop work. Dr. Lilly made an extensive collection of Indian relics and prehistoric articles of the Mound Builders. He is the author of *The Little Church on the Circle,* a history of Christ Church Cathedral, Indianapolis, published in 1957, and *Prehistoric Antiquities of Indians,* published in 1937.

Dr. Lilly has been awarded the following honorary degrees: Pharm. M., Philadelphia College of Pharmacy and Science, 1935; LL.D., Wabash College, 1938; Litt. D., Butler University, 1940; D. C. L., University of the South, 1940; D. S., Transylvania College, 1941; LL. D., University of Kentucky, 1945; D. H. L., Union College, 1948; D. H. L., DePauw University, 1948; LL. D., Indiana University, 1949; LL.D., University of Pittsburgh, 1952, and D. H. L., Kenyon College, 1956.

Work of Desiderio Saluted

A salutation commending the work of Mr. Joseph A. Desiderio, Director of Pharmacy Service at Delaware County Hospital, appeared in the Upper Darby News for Feb. 20, 1958. Entitled "A New Good Neighbor," the following salutation was published by Lit Brothers as a public service:

How frequently do we read of accidents due to poisons in the home? How often do we hear of deaths, especially children, from same cause? And we always think, "Something should be done about it."

Joseph Desiderio is doing just that. A young pharmacist with an excellent record of study and activity behind him, he is now Director of Pharmacy Service at Delaware Co. Hospital . . . so is well qualified to have been co-chairman for past two years of the Poison Control Committee of the Phila. Hospital Pharmacists Association. Two children of his own no doubt quicken his interest.

He sums up the efforts of the Poison Control Group as follows:

1. We give lectures on accidental poisonings in the home to various non-professional groups such as P.T.A., Optimists' Clubs, etc.

2. Most hospital pharmacies have emergency cabinets for accidental poisonings. They also provide information on antidotes.

3. We are making available for public viewing a display on the subject.

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Tetracycline .....**125 mg.** (tetracycline HCl activity)

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For severe or mixed infections that do not respond rapidly to tetracycline alone

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Each 5-ml. teaspoonful contains:

Tetracycline .....**125 mg.** (tetracycline HCl activity)

Sulfadiazine .....**167 mg.**

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Sulfamethazine .....**167 mg.**

Agreeable flavor; stable at room temperature for at least 12 months. In bottles of 2 fl. oz. List price $4.70, net price $2.82.

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Locked narcotics cabinet on the inside of the lower door may be opened only by the head nurse's key. For safety control, the two outer doors are also locked.

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Minnesota Association

The Minnesota Association of Hospital Pharmacists met on February 28 with Dr. Harold Wright as the principal speaker. He discussed "Electrolyte Balance in the Body."

During the business session there was discussion regarding the possibility of a joint meeting with the hospital pharmacists in Rochester, Minn., arrangements for a seminar in cooperation with Pfizer Laboratories, assistance in revising the Minimum Standard for Pharmacies in Hospitals, and extention of associate membership to company representatives.

Northeastern New York Society

The February 2 meeting of the Northeastern New York Society of Hospital Pharmacists was held at the McKeon Staff House at the Leonard Hospital, Troy, New York. There were twenty-two members and twelve guests present. Following a buffet dinner, Dr. Francis J. O'Brien, Dean, Albany College of Pharmacy spoke on the "Five Year Program." Subsequent to the talk by Dean O'Brien, President Jeffrey discussed recent correspondence concerning a meeting with representatives of all the ASHP Chapters in New York State and the State Board of Pharmacy.

Indiana Chapter

The Indiana Chapter of the American Society of Hospital Pharmacists held its regular quarterly meeting on April 1, at 2:15 P. M., in conjunction with the Annual Professional Clinic at the Student Union Building, Purdue University, West Lafayette, Indiana. The program included a report on a pricing average for hospital drug charges taken from a survey throughout the state. The report was presented by Mr. Frank Snyder of the Purdue University School of Pharmacy.

During the business session, new officers were elected including *President,* William Wissman, Ft. Wayne; *Vice-President,* Frank Duncan, Elkhart; and *Secretary-Treasurer,* Mildred Wiese, Indianapolis. Other business transacted included naming a delegate, Dr. Glen Sperandio, to the Annual Meeting of the ASHP in Los Angeles in April. Membership in the Indiana Chapter was also discussed with regard to attendance at meetings and arrangements for notifying members.

Greater Kansas City Society

Seventeen members were present for the March 12 meeting of the Society of Hospital Pharmacists of Greater Kansas City. The group met at the Blue Cross-Blue Shield Building on Wednesday, March 12, at 2 P.M.

Business transacted included arrangements for the pharmacy section for the Midwest Hospital Association's Convention; naming a delegate to the ASHP Annual Meeting; and arrangements for an evening meeting so that other hospital pharmacists might be able to participate in the affairs of the Association.

Houston Area Society

Members of the Houston Area Society of Hospital Pharmacists honored Mr. Herbert Flack of Philadelphia with a dinner on Monday night, February 17, following the Seminar for Hospital Pharmacists which was held during the previous weekend at the University of Texas in Austin. Mr. Thomas Horner of St. Luke's-Texas Children's Hospitals was in charge of arrangements with Robert Lantos of the University of Texas Medical Branch, Galveston, President of the Houston Area Chapter, presiding at the dinner.

On Monday afternoon, Mr. Flack visited several hospital pharmacies in the Texas Medical Center, Houston, and after the dinner Monday night he accompanied Mr. and Mrs. Henry Beard to Galveston, where he visited the U. S. Public Health Service Hospital and the University of Texas Medical Branch Hospital on Tuesday.

Northern California Society

Members of the Northern California Society of Hospital Pharmacists held a joint meeting with the Northern California Branch of the American Pharmaceutical Association at Laurel Hall in San Francisco, on Wednesday, March 19. One hundred and forty members representing the two groups were present. Following introduction of officers of the two organizations and distinguished guests, Mr. Don O. Wilson, Division Manager of Wyeth Laboratories, presented to the University of California, the original oil portrait of Dean Troy Daniels of the University of California College of Pharmacy. In making the presentation, Mr. Wilson called attention to the Dean's contributions to the professional growth of pharmacy in his many activities. The portrait was received by Dr. John Saunders, Dean of the University of California Medical School and Chairman of the U. C. Administrative Committee. Dean Daniels expressed his appreciation for the honor given him in having the portrait made.

The program included a speaker from Great Britain, Dr. Arnold H. Beckett, Senior Lecturer and Research Director in Pharmaceutical Chemistry at the School of Pharmacy, Chelsea College of Science and Technology, London. Dr. Beckett spoke on "Pharmacy in Britain" and discussed pharmaceutical education, pharmaceutical endeavor, and the national health service.

The meeting closed with announcements of future events and President Mathilde Herby expressed appreciation to Wyeth Laboratories and to the program chairman.

Distinguished guests present for the dinner included Mr. Claude Busick, a Past President of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS; Dr. John Eiler, Assistant Dean, University of California College of Pharmacy; Dr. Helen Naum, Dean, University of California School of Nursing; Dr. Herbert Johnston, Dean of Students, University of California Medical Center; Mr. and Mrs. Stanley Bateman, Business Manager, University of California, San Francisco Campus; and Mr. and Mrs. Hixon, Administrator from Moffitt Hospital, San Francisco.

Greater New York Chapter

Members of the Greater New York Chapter of the ASHP met at Mary Immaculate Hospital in Jamaica on March 18. The guest speaker was Rev. James H. Fitzpatrick, Associate Director, Division of Health and Hospitals, Catholic Charities. In a very aptly presented and practical manner, Father stressed the association of the Religious and a Pharmacist.

During the business session, Sister Mary Virginia and Sister Mary Etheldreda gave a review of the recent meetings

ASHP affiliates

in Albany with members of the State Board of Pharmacy which they attended along with representatives of other hospital organizations throughout New York.

There was also considerable discussion regarding assay control of both parenteral and non-parenteral products. It was agreed that this subject will continue to be stressed and hospital pharmacists will want to give greater attention to controls in the pharmacy.

Greater Cincinnati Society

The Society of Hospital Pharmacists of Greater Cincinnati met at the Good Samaritan Hospital on February 3. Mr. Pat Murphy, President, called for a round table discussion of various problems arising in pharmacies of the local hospitals. Following adjournment, Sister Austin, Chief Pharmacist at Good Samaritan Hospital, served refreshments.

Illinois Society

Mr. Arthur Bernstein, Attorney for the American Hospital Association, moderated a panel on "Intradepartmental Problems," at the April 8 meeting held at Wesley Memorial Hospital. Members of the panel included Mr. Louis Gdalman, Director of Pharmacy Service, Presbyterian-St. Luke's Hospital; Mr. Nelson Kitsuse, Director, Pharmacy Service, Louis Weiss Memorial Hospital; Mr. James Palmgren, Staff Pharmacist, Evanston Hospital, Evanston; and Mr. James Hatakeyama, Staff Pharmacist, University of Chicago Clinics. The panel members presented their views on what the chief expects of the staff pharmacist and what the staff pharmacist expects of the chief.

Following the program, new officers for the coming year were announced including *President,* Edward Hartshorn, Evanston Hospital, Evanston; *Vice-President,* Nelson Kitsuse, Louis Weiss Hospital, Chicago; and *Secretary-Treasurer,* Kate Whitfield, Provident Hospital, Chicago. Mr. Joseph Oddis, Staff Representative at the American Hospital Association, was named a member of the Executive Committee and Edward Hartshorn was named delegate to the 1958 Convention.

Announcements were made regarding a joint dinner meeting with the Chicago Branch of the A.Ph.A., a trip to Eli Lilly and Company in Indianapolis, plans for working with the Illinois Hospital Association regarding handling narcotics in hospitals, and tentative arrangements for the student visitation program for the coming year.

Mr. Jim Palmgren read a list of suggestions for members to participate in National Hospital Week. These included the following:

1. The Society should write a letter to each active member encouraging him to offer to serve the administration in whatever capacity he could be used.

2. Encourage hospital pharmacists to be present in the Pharmacy if tours occurred after the Pharmacy closed.

3. The chief pharmacist should secure recruiting material from the college and set up a career table.

4. If career conferences are set up, the pharmacist should participate.

5. All hospital pharmacists contributing in any way should communicate to the committee and report on activities. Photographs should be taken of the various activities.

Announcements were also made by Dean George Webster of the University of Illinois College of Pharmacy regarding open house at the Medical Campus of the University of Illinois and a symposium on municipal air pollution with nationally known specialists participating.

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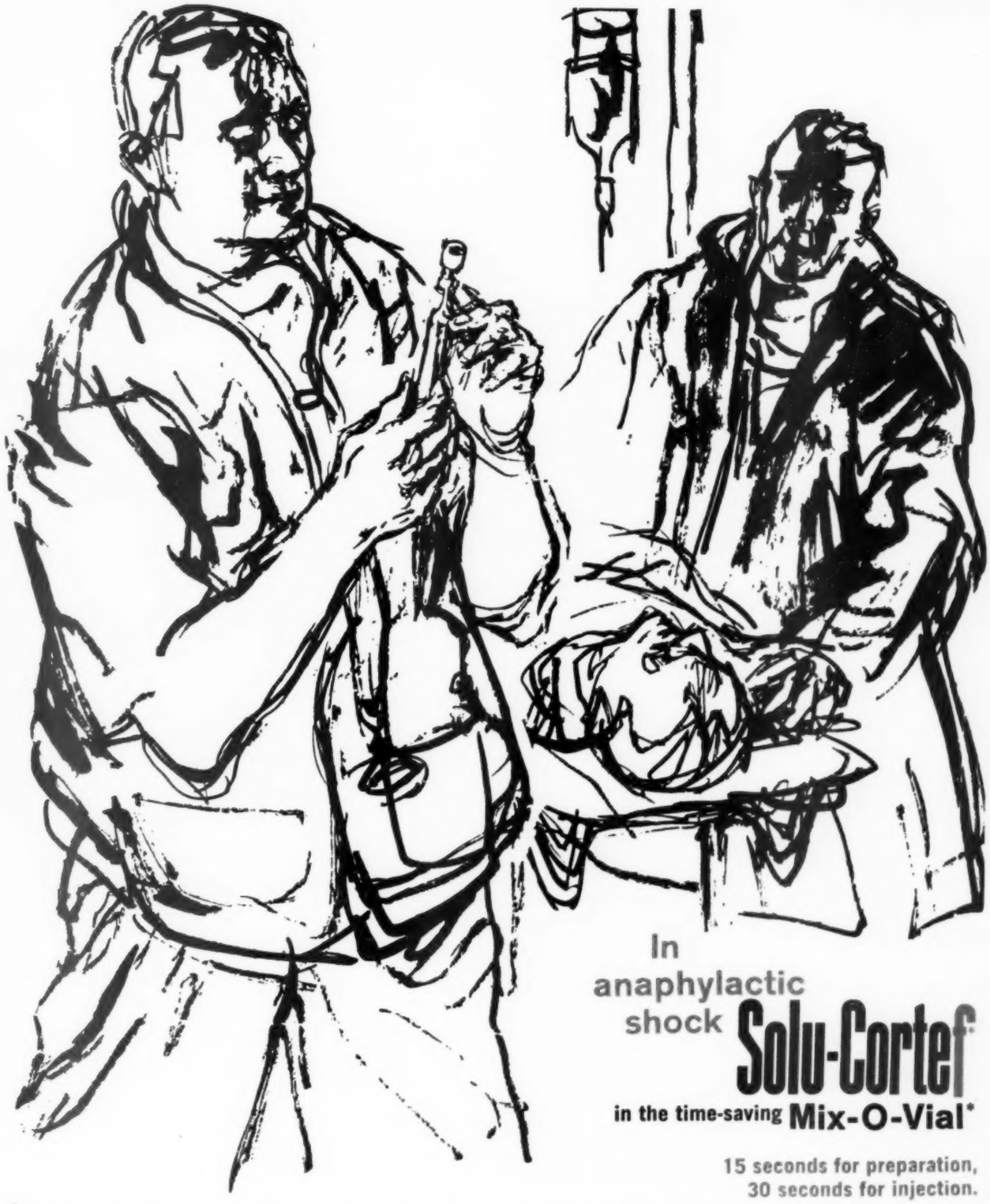

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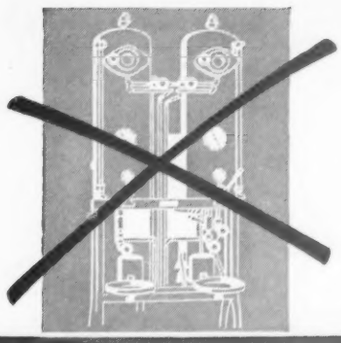
References: 1. Hull, E.: Kansas City M.J. 33:19 (March) 1957. 2. Grafer, W. C.: Ann. Allergy 13:191 (March-April) 1955. *Trademark, Reg. U. S. Pat. Off.



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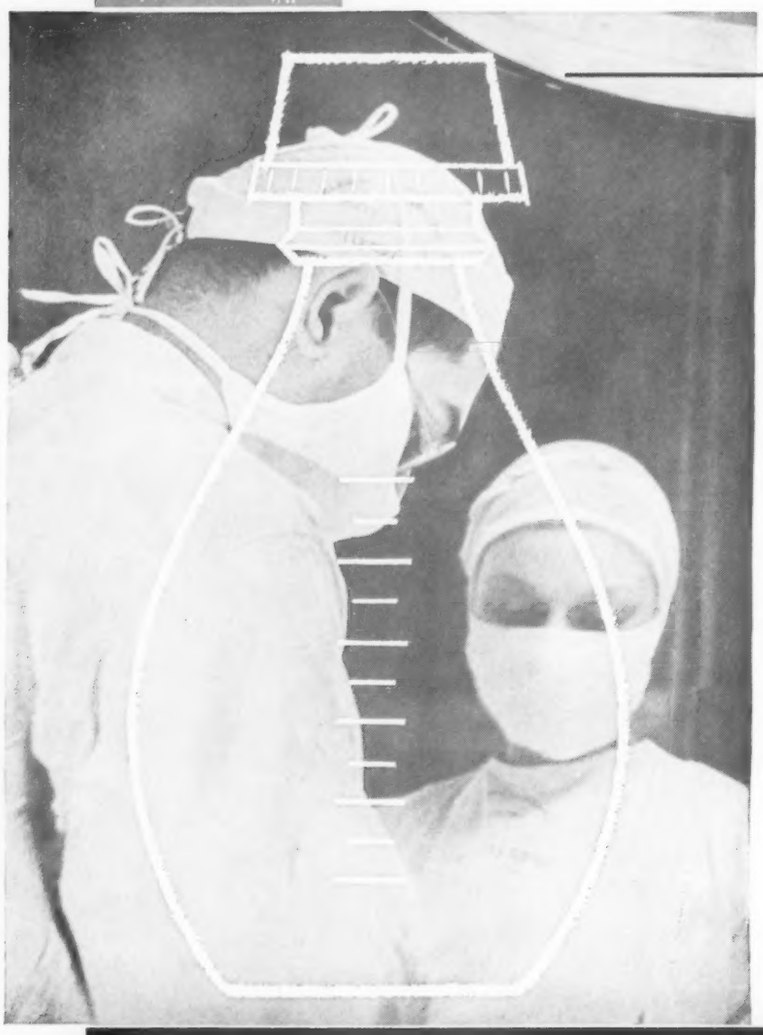

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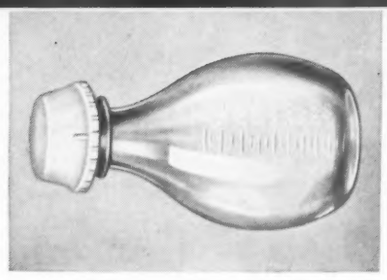

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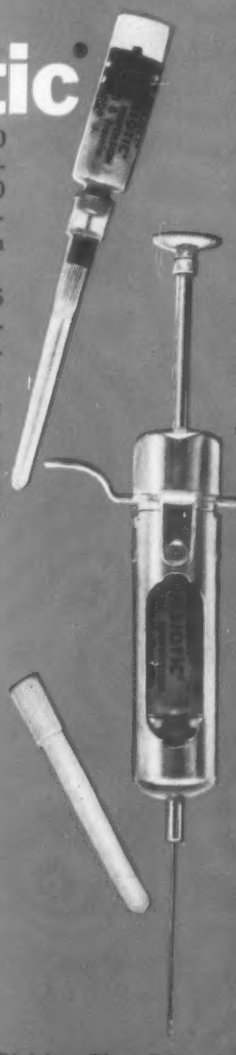

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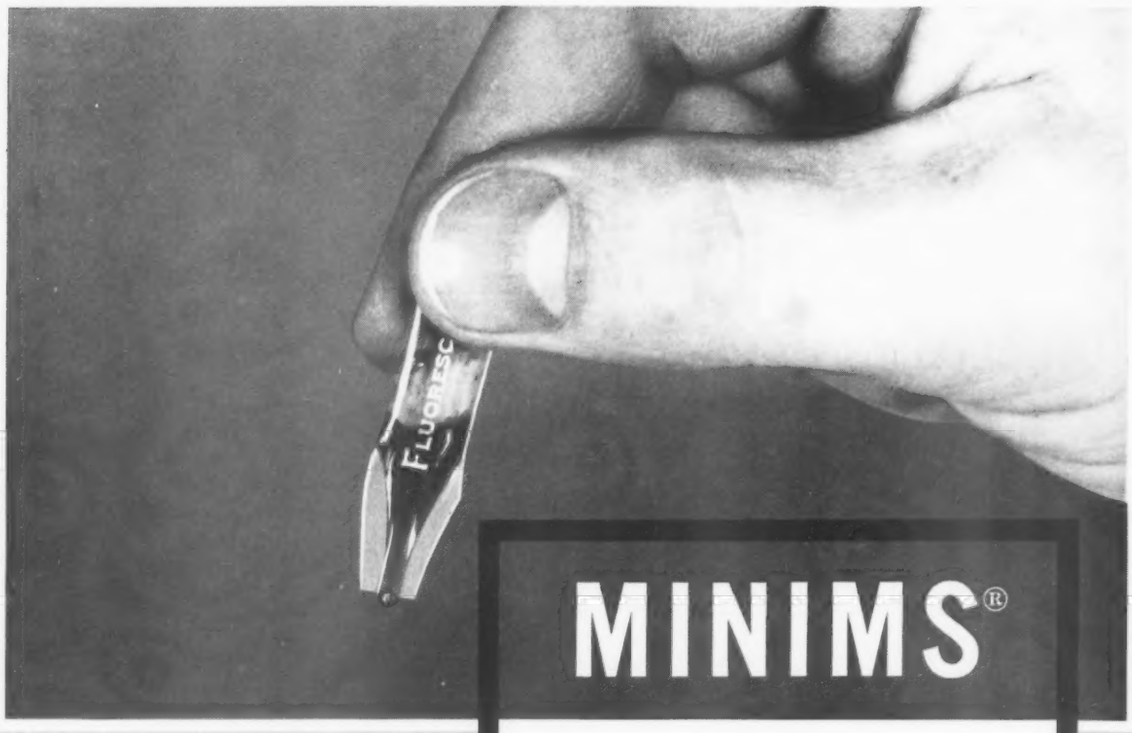

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ANTIBIOTIC • ADSORBENT • DEMULCENT • ANTISPASMODIC

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Kaolin (90 gr.)	6.0 Gm.
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Dihydroxyaluminum aminoacetate	0.25 Gm.
Hyoscyamine sulfate	0.1037 mg.
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Hyoscine hydrobromide	0.0065 mg.
Phenobarbital (¼ gr.)	16.2 mg.

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Disposable Syringe Medication

A Review of Advantages and Three Outstanding Examples

AN INCREASED TREND toward the acceptance and use of disposable syringe medication is evident in hospitals throughout the country. Many "standard" hospital parenteral products are now being offered in this relatively new dosage form by pharmaceutical firms. Consideration of some of the advantages of disposable items helps to account for this increasing demand.

Assured Sterility

Since some manufacturers (*e.g.*, Organon) supply a completely sterile disposable needle and syringe with the cartridge of medication, the danger of inducing infectious hepatitis or pyrogenic responses in patients is greatly reduced. In addition, the disposable units may also reduce the incidence of serum sickness and anaphylactoid reactions in hospital personnel. Protection is afforded the person preparing the injection, since no withdrawal of a needle from a vial is necessary. Thus there is little risk of puncturing or scarifying his skin.

Expedites Medication and Charges

The time consumed by nurses and pharmacists in preparing injections is greatly reduced through use of disposable units, since these are always ready for immediate use. This allows nurses to spend more time in actual patient care. In addition, since the disposable unit is completely used up after each injection, the patient need not be charged for a full multiple-dose vial nor need the hospital pharmacy assume the loss for a partially used vial.

No Waste

Precision dosages are assured in the disposable units. This decreases waste of medicament, facilitates inventory control, and increases the efficiency of the hospital pharmacy. In addition, central supply operating costs are reduced through fewer syringe breakages, and reduced need for washing, assembling, sterilizing and storing hypodermic equipment.

Better Patient Psychology

Patient comfort and well-being are increased when the patient becomes aware that the needles are used only once and discarded. In addition, each needle is new, burr-free, and sharp, minimizing the pain on injection.

Economy

Some manufacturers (*e.g.*, Organon) price their disposable units so that the hospital pays only the cost of the medication itself plus the manufacturer's cost for the disposable needle and syringe. This helps make medication administered in disposable units economical, and, when the other advantages of disposable units are considered, a real advance over the use of standard hypodermic equipment with multiple-dose vials.

In line with the trend toward increased hospital usage of disposable syringe medication, Organon Inc. of Orange, New Jersey, a pharmaceutical firm with more than two decades' experience in the manufacture and marketing of quality parenteral products, recently introduced three of its hospital products in disposable unit form. These products are Cortrophin®-Zinc, Liquaemin® Sodium, and Adrestat® (F). Each of these products is available in a package containing a 1-cc cartridge of medication and a sterile B-D®* Disposable Syringe. The packaging of this Organon disposable unit is unique in that the needle and syringe are packaged in a sterile plastic bag, assuring sterility to the moment of use.

Cortrophin-Zinc is Organon's exclusive aqueous suspension of long-acting corticotropin (ACTH) with zinc hydroxide. It provides therapeutic ACTH activity for far longer periods than can be obtained with ACTH in any other vehicle. In disposable units, Cortrophin-Zinc 1-cc cartridges are available in two strengths: 40 U.S.P. units of ACTH per cc, which provides ACTH activity for 72 or more hours, and 20 U.S.P. units of ACTH per cc, which provides ACTH activity for 36 or more hours. With its wide range of indications (over 100), Cortrophin-Zinc in disposable unit form is a valuable hospital item.

Liquaemin Sodium (Heparin Sodium) is America's first and finest heparin. Its usefulness in the prophylaxis and treatment of thromboembolic and atherosclerotic disease is well established. In disposable units, Liquaemin Sodium 1-cc cartridges contain 20,000 U.S.P. units of heparin sodium (approx. 200 mg.) in aqueous solution. This strength and form of Liquaemin provides prolonged anticoagulant activity equal to that of the same concentration of heparin in gelatin, and without the inconveniences of a gelatin menstruum.

Adrestat (F) is Organon's systemic hemostat (Carbazochrome Salicylate) indicated in the prevention and control of bleeding and oozing. In disposable units, Adrestat (F) 1-cc ampuls contain 5 mg. of adrenochrome semicarbazone (as 130 mg. carbazochrome salicylate**). This form of Adrestat (F) is particularly useful in emergency clinics and for pre- and post-operative use.

Further information on these three products as well as extra copies of this article for use in presenting the advantages of disposable syringe medication to Formulary or Therapeutics Committees may be obtained by writing to Hospital Sales Department, Organon Inc., Orange, N. J.

References: Bogash, R. C. and R. Pisanelli, *Hosp. Mgt.*, *80*:82 (Nov.-Dec.) 1955. Hunter, J. A., *et al.*, *Hosp. Mgt.*, (Mar., Apr., May) 1956. Skolaut, M. W., and W. H. Briner, *Bull. Amer. Soc. Hosp. Pharm.*, *14*:675 (Nov.-Dec.) 1957. Tinker, R. B., *Bull. Amer. Soc. Hosp. Pharm.*, *13*:319 (Jul.-Aug.) 1956. (These references indicate sources of factual material and do not imply use of the preparations described herein.)

*T.M. Reg. Becton, Dickinson & Co. **U.S. Pat. Nos. 2,581,850; 2,506,294

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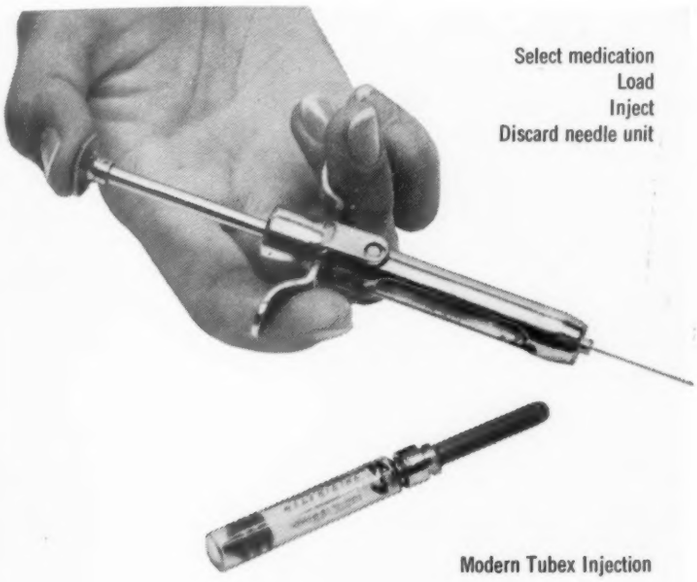

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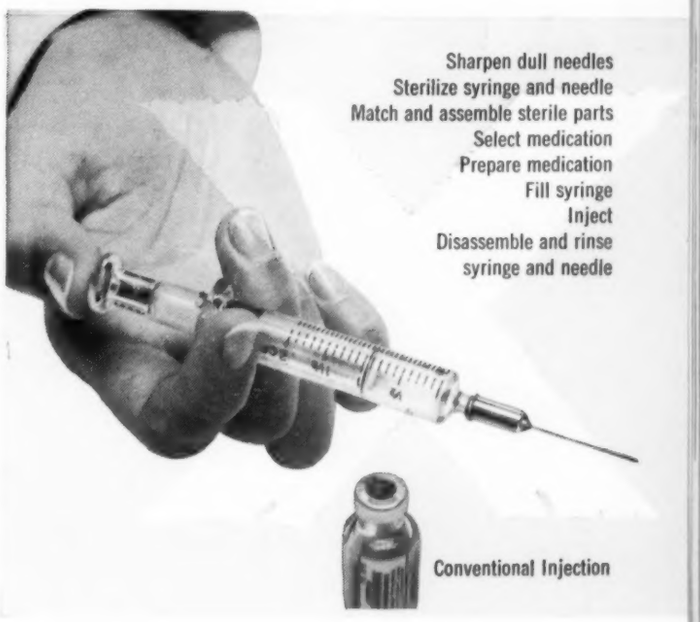

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- eliminates a primary source of serum hepatitis
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*Based on Hunter, J.A., et al.: Hosp. Management *81*:82 (March) 1956, *81*:80 (April) 1956, *83*:86 (March) 1957. Reprints of these studies are available from your Wyeth Territory Manager or write Wyeth, P.O. Box 8299, Philadelphia 1, Pa.

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(Pathogens isolated from noses and throats of humans.)

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			5 min.	*10 min.*		*5 min.*	*10 min.*
3246	R	52, 52A	0	0	(Complete kill at 1:300 through 1:900)	0	0
3269	R	52, 42B, 81	0	0		0	0
126	R	7, 47, 53, 54, 73, 75, 77, VA_4	0	0		0	0

0 indicates complete kill.

Ask for the Man Behind the Drum—your Huntington representative. He can give you full details.

Now fight the deadly and growing peril of hospital infection with the germicide that allows for a tremendously wide margin of error in use.

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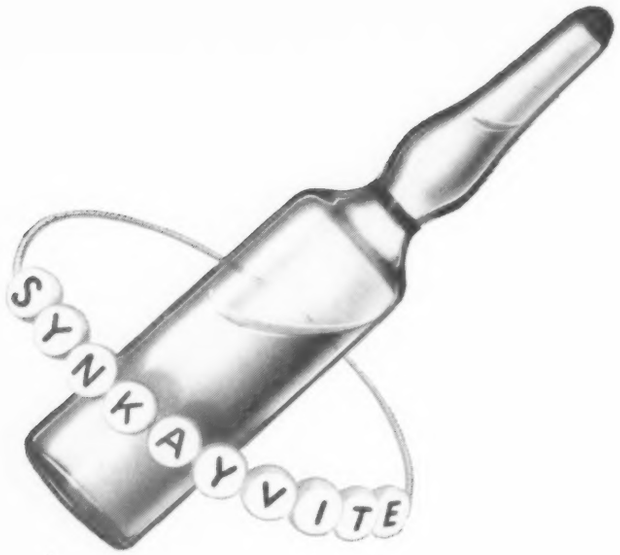

Newly born for the Newborn

Recent clinical reports (J.A.M.A. *164*:1331, July 20, 1957) have stressed the adequacy of low doses of water-soluble vitamin K analogs for infants and especially the undesirability of excess dosage in prematures. So you will be glad to know of these two new dosage forms of Synkayvite:

Ampuls, ½ cc, 1 mg, boxes of 12 and 100
Ampuls, ½ cc, 2.5 mg, boxes of 12 and 100

Still available are these familiar forms:

Ampuls, 1 cc, 5 mg, boxes of 6, 25 and 100
Ampuls, 1 cc, 10 mg, boxes of 6, 25 and 100
Ampuls, 2 cc, 75 mg, boxes of 6 and 25

Synkayvite administered routinely to the mother before delivery, or to the infant, is valuable, low-cost insurance against neonatal hemorrhage.

Synkayvite similarly protects surgical patients — especially tonsillectomy and biliary tract cases — from the hazards of lowered prothrombin levels.

Synkayvite is now available in convenient, color-break ampuls providing a full range of choice in dosage, according to the needs of prematures, full-term infants, older children and adults.

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SYNKAYVITE ROCHE

SYNKAYVITE® BRAND OF MENADIOL SODIUM DIPHOSPHATE U. S. P.

Dear Sirs:

Poison Control Center

DEAR SIRS: The pharmacy service of this hospital set up and began to operate a poison control center 19 months ago. Service is rendered 24 hours a day, following the usual pattern. The pharmacy gives service during the day and a pharmacist is on call 24 hours a day.

To date, we have 1,673 listings in our files besides a very complete set of reference books.

J. A. WOODWARD
Director of Pharmacy Service

Eliza Coffee Memorial Hospital
Florence, Ala.

Equipment For Sale

DEAR SIRS: I have the following items which I would like to sell at greatly reduced prices. Any hospital pharmacist interested in obtaining 33 gross of 43 mm. aluminum caps, triple seal; 10 gross of 6-c black 2-hole stoppers; and 1 table model T-4300 stand with bottle support and K-454 crimping chuck for attaching 43 mm. aluminum seals, please write to me at the address below.

TERRY B. NICHOLS
Chief, Pharmacy Service

Georgia Baptist Hospital
Atlanta 3, Ga.

Compliments

DEAR SIRS: The new issue of the publication of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS has arrived and it is wonderful.

The format is grand, and the material is always most informative. Our boys all like it.

Keep up the good work!

EDWARD T. MAZILAUSKAS

Clayton & Edward Chemists
New York 21, New York

DEAR SIRS: A somewhat belated note but one to express my compliments and congratulations to you and the editorial staff of the AMERICAN JOURNAL OF HOSPITAL PHARMACY for the 'new look' given to our *Bulletin*. A very worthy change in appearance meriting the praise of all pharmacists.

CLAUDE U. PAOLONI
Chief Pharmacist

Moses H. Cone Memorial Hospital
Greensboro, North Carolina

DEAR SIRS: My congratulation to you and the others responsible for the new AMERICAN JOURNAL OF HOSPITAL PHARMACY. It sure is a wonderful step forward—splendid issue—enjoyed it so much . . .

HANS S. HANSEN, *Administrator*

Valley Children's Hospital and Guidance Clinic
Fresno, California

DEAR SIRS: This is to compliment you on the new title of *The Bulletin*, as well as the makeup of the same . . . All of this will certainly tend to improve the standard of the AMERICAN JOURNAL OF HOSPITAL PHARMACY in its rightful category.

HENRY M. BURLAGE, *Dean*

The University of Texas
College of Pharmacy
Austin 12, Texas

Graduate and Residency Program

DEAR SIRS: Graduate instruction and residency in hospital pharmacy administration, offered for a number of years cooperatively by the Philadelphia College of Pharmacy and Science and the Jefferson Medical College of Philadelphia, is now being offered by these two institutions and the Veterans Administration Hospital of Philadelphia. These institutions are making their combined facilities available each year to a limited number of qualified graduates of accredited schools of pharmacy for residency and/or graduate study.

Graduates of these programs are trained to serve as directors of pharmacy service in hospitals. Enclosed is the complete prospectus.

JOHN E. KRAMER, *Registrar*

Philadelphia College of Pharmacy and Science
Philadelphia 4, Pa.

Reprints Available

DEAR SIRS: We greatly appreciate your authorizing us to make additional reprints of the paper by Dr. George F. Reddish entitled, "Antiseptics in the Hospital Pharmacy," which appeared in the November-December 1956 issue of *The Bulletin*.

H. J. CORDLE, *Director*

Chilean Iodine Educational Bureau, Inc.
120 Broadway
New York 5, New York

by DON E. FRANCKE

The American Hospital Formulary

► FOR THE FIRST TIME IN AMERICAN HISTORY, the tedious, time-consuming task of compiling individual hospital formularies will be no longer necessary. Rather, a formulary service which will supply drug monographs in loose-leaf form will be made available to hospitals by the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS. The ASHP Hospital Formulary is now in galley form and is scheduled for publication by September 1958.

Although the need for some type of a formulary service had been recognized and discussed for years, it was not until 1954 that a formal, detailed proposal was presented to the ASHP.[1] The SOCIETY accepted this proposal and appointed Dr. William Heller as chairman of the committee to implement the formulary service.

One of the most important single factors in the ASHP Formulary Service is that the medical staff of each hospital retains complete authority as to the drugs included in the formulary of its hospital. Thus, working through the Pharmacy and Therapeutics Committee, each medical staff will select from the *American Hospital Formulary* only those drugs it considers most efficacious.

Hospitals which use the *American Hospital Formulary* will find that it offers several advantages. Some of these may be enumerated briefly. For example, it is:

1. CONVENIENT. Drug monographs, classified and indexed, are prepared ready for use.

2. UP-TO-DATE. New drug monographs are issued at regular intervals and may be inserted, at will, in the loose-leaf formulary.

3. ADAPTABLE. Loose-leaf arrangement permits easy inclusion or omission of any drug, as desired.

4. ECONOMICAL. Cost is only a few cents a page—far below the cost in time and materials were each hospital to prepare its own formulary.

5. CONDUCIVE TO RATIONAL DRUG THERAPY. Permits Pharmacy and Therapeutics Committees to give more time and thought to the selective evaluation of drugs and drug combinations.

6. AN AID TO TEACHING. Serves as a teaching tool for medical students and interns, and for student nurses.

7. CONCISE. Helpful and meaningful descriptions of the drug, its actions and uses, dosage, and preparations are stated briefly.

8. INCLUSIVE. Contains supplementary information on prescription writing, antidotes for poisons, and conversion and other tables.

9. AIDS PHYSICIAN AND NURSE. Permits quick check of details regarding preparations available, possible side effects, etc.

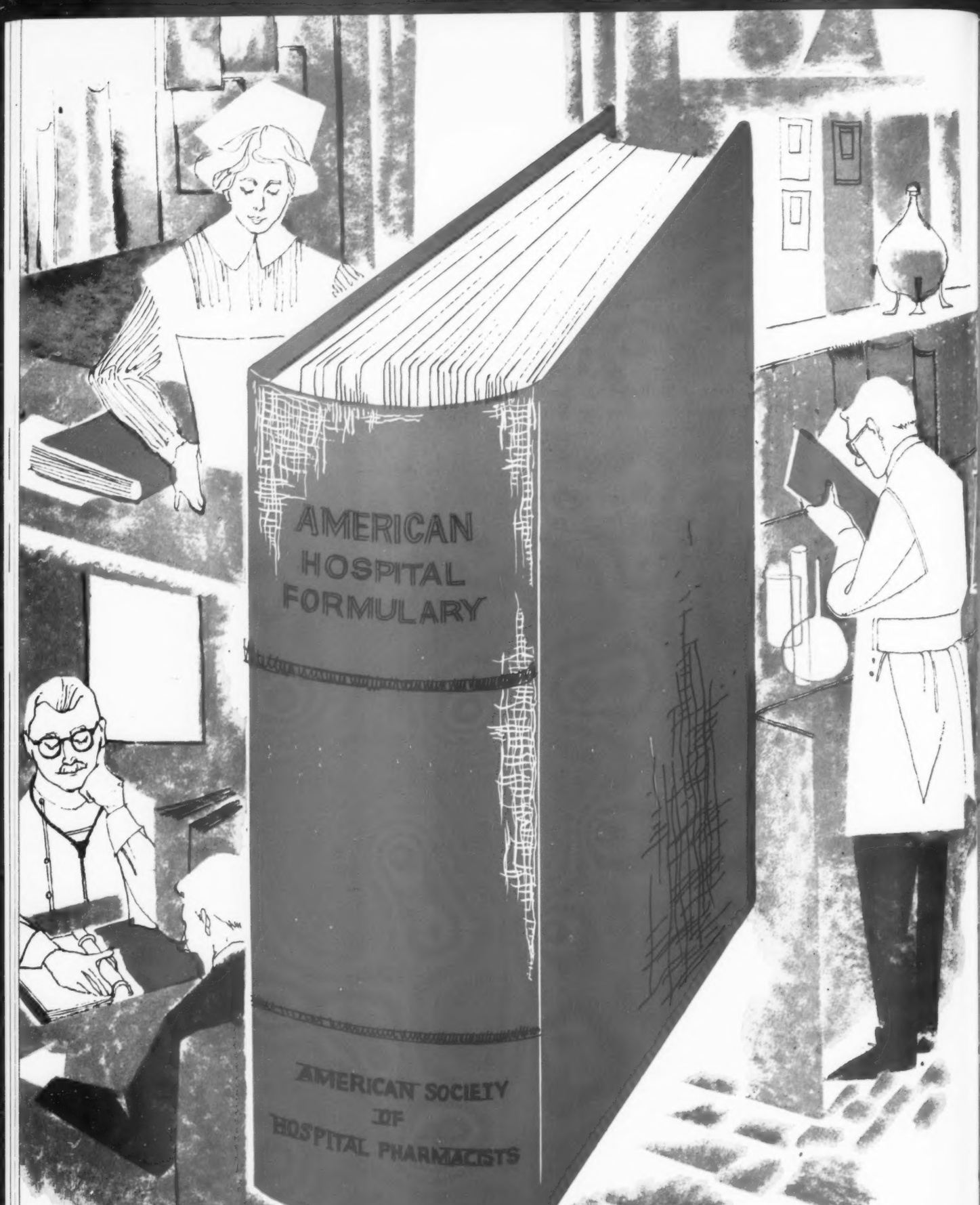
10. PROMOTES PATIENT SAFETY. Reduces confusion engendered by appearance of large number of drugs under many names.Aids in anticipating side effects, etc., of drugs.

These merits of the *American Hospital Formulary*, while important, do not state its principal advantage to the hospital pharmacist. Simply stated, the ASHP Formulary Service gives the hospital pharmacist time; time to work with the medical staff in the selective evaluation of new drugs; time to really organize and plan for interesting and stimulating meetings of the Pharmacy and Therapeutics Committee; time to work with the nursing staff in the elimination of practices and procedures which may lead to medication errors; time to encourage the medical staff to undertake an objective audit of the discriminate use of therapeutic agents, and to enter other areas for promotion of rational drug therapy; and time to cooperate with the medical and nursing staffs in numerous areas involving broad policies concerning the use of drugs in the hospital.

The formulary service complements, it does not replace, the work of the Pharmacy and Therapeutics Committee. It is a working tool which can be used by physicians and pharmacists to make the formulary system of each hospital a dynamic, ever changing compilation of modern medicinals selected with discrimination. It is, indeed, a service to the nation's hospitals.

By making its formulary service a reality, the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS is making a significant contribution to better patient care in the hospitals of America.

1. Francke, D.E.: A Proposal for a National Hospital Formulary Service, *Bull. Am. Soc. Hosp. Pharm.* *11*:328 (Sept.-Oct.) 1954.


AMERICAN
HOSPITAL
FORMULARY
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OF
HOSPITAL PHARMACISTS

THE AMERICAN HOSPITAL FORMULARY SERVICE

. . . its application and use

by WILLIAM M. HELLER

- **Encourages selection of most useful drugs by each hospital's medical staff**
- **Contains information useful to pharmacists, nurses, and physicians**
- **Provides continuous formulary service to the nation's hospitals**
- **Arranged in loose-leaf form to permit maximum adaptability**
- **Supplementary monographs to keep formulary up-to-date**
- **Formulary Service to be available September 1958**

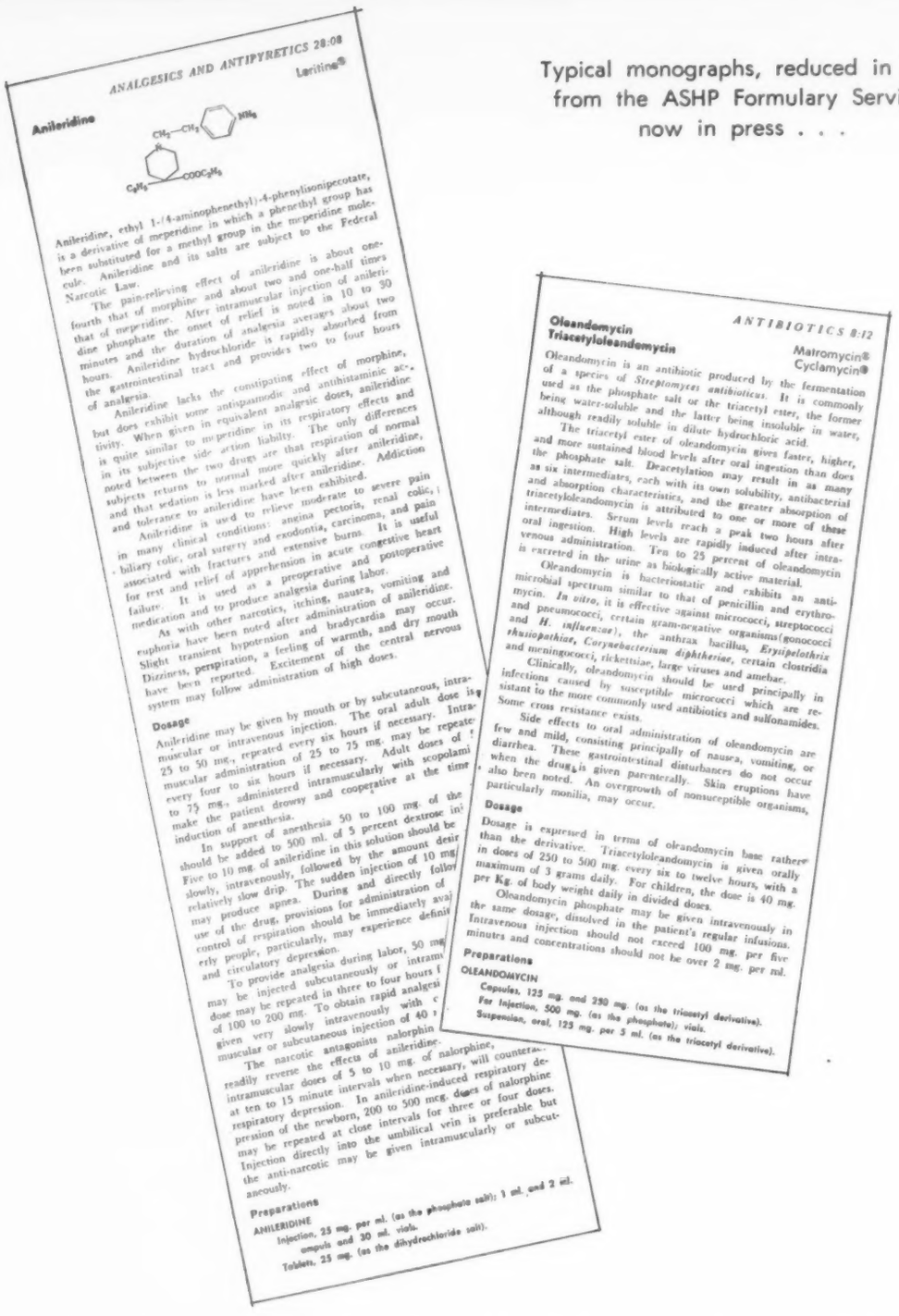
► A HOSPITAL FORMULARY IS NOT a static, fixed, inflexible list of drugs and preparations, but is a dynamic, ever-changing compilation of modern pharmaceuticals selected with discrimination.[1] To compile and maintain it takes time and thought and effort. It is the purpose of *The American Hospital Formulary Service* to assist you in this program of improving the handling and use of drugs in hospitals.

WILLIAM M. HELLER, Ph.D., is Chief Pharmacist, University of Arkansas Medical Center, Little Rock and Chairman of the Committee on Pharmacy and Pharmaceuticals of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS.

The hospital formulary is a book or booklet listing those drugs and dosage forms, together with any additional information about the drugs, their use, their distribution within the hospital, and other matters related to drug therapy, which the Pharmacy and Therapeutics Committee wishes to include for the benefit of the professional staffs. Thus, in its simplest form, the hospital formulary is a drug list. In its more elaborate forms it becomes almost a textbook on the drugs used in the hospital.

More than half of the hospitals in the United States have formularies.[2] Few of these are more than drug lists. Yet the primary purpose of the formulary

Typical monographs, reduced in size from the ASHP Formulary Service, now in press . . .



ANALGESICS AND ANTIPYRETICS 28:08

Anileridine

Leritine®

Anileridine, ethyl 1-(4-aminophenethyl)-4-phenylisonipecotate, is a derivative of meperidine in which a phenethyl group has been substituted for a methyl group in the meperidine molecule. Anileridine and its salts are subject to the Federal Narcotic Law.

The pain-relieving effect of anileridine is about one-fourth that of morphine and about two and one-half times that of meperidine. After intramuscular injection of anileridine phosphate the onset of relief is noted in 10 to 30 minutes and the duration of analgesia averages about two hours. Anileridine hydrochloride is rapidly absorbed from the gastrointestinal tract and provides two to four hours of analgesia.

Anileridine lacks the constipating effect of morphine, but does exhibit some antispasmodic and antihistaminic activity. When given in equivalent analgesic doses, anileridine is quite similar to meperidine in its respiratory effects and in its subjective side action liability. The only differences noted between the two drugs are that respiration of normal subjects returns to normal more quickly after anileridine, and that sedation is less marked after anileridine. Addiction and tolerance to anileridine have been exhibited.

Anileridine is used to relieve moderate to severe pain in many clinical conditions: angina pectoris, renal colic, biliary colic, oral surgery and exodontia, carcinoma, and pain associated with fractures and extensive burns. It is useful for rest and relief of apprehension in acute congestive heart failure. It is used as a preoperative and postoperative medication and to produce analgesia during labor.

As with other narcotics, itching, nausea, vomiting and euphoria have been noted after administration of anileridine. Slight transient hypotension and bradycardia may occur. Dizziness, perspiration, a feeling of warmth, and dry mouth have been reported. Excitement of the central nervous system may follow administration of high doses.

Dosage

Anileridine may be given by mouth or by subcutaneous, intramuscular or intravenous injection. The oral adult dose is 25 to 50 mg., repeated every six hours if necessary. Intramuscular administration of 25 to 75 mg. may be repeated every four to six hours if necessary. Adult doses of 25 to 75 mg., administered intramuscularly with scopolamine, make the patient drowsy and cooperative at the time of induction of anesthesia.

In support of anesthesia 50 to 100 mg. of the drug should be added to 500 ml. of 5 percent dextrose in water. Five to 10 mg. of anileridine in this solution should be given slowly, intravenously, followed by the amount desired. Rapid or relatively slow drip. The sudden injection of 10 mg. or more may produce apnea. During and directly following use of the drug, provisions for administration of oxygen and control of respiration should be immediately available. Elderly people, particularly, may experience definite hypotension and circulatory depression.

To provide analgesia during labor, 50 mg. of anileridine may be injected subcutaneously or intramuscularly. The dose may be repeated in three to four hours if necessary. For a dose of 100 to 200 mg. To obtain rapid analgesia, the drug may be given very slowly intravenously with caution. The intramuscular or subcutaneous injection of 40 mg. of nalorphine hydrochloride will readily reverse the effects of anileridine.

The narcotic antagonists nalorphine, levallorphan and anileridine, given intramuscular doses of 5 to 10 mg. of nalorphine, at ten to 15 minute intervals when necessary, will counteract respiratory depression. In anileridine-induced respiratory depression of the newborn, 200 to 500 mcg. doses of nalorphine may be repeated at close intervals for three or four doses. Injection directly into the umbilical vein is preferable but the anti-narcotic may be given intramuscularly or subcutaneously.

Preparations

ANILERIDINE

Injection, 25 mg. per ml. (as the phosphate salt); 1 ml. and 2 ml. ampuls and 30 ml. vials.

Tablets, 25 mg. (as the dihydrochloride salt).

ANTIBIOTICS 8:12

Oleandomycin
Triacetyloleandomycin

Matromycin®
Cyclamycin®

Oleandomycin is an antibiotic produced by the fermentation of a species of *Streptomyces antibioticus*. It is commonly used as the phosphate salt or the triacetyl ester, the former being water-soluble and the latter being insoluble in water, although readily soluble in dilute hydrochloric acid.

The triacetyl ester of oleandomycin gives faster, higher, and more sustained blood levels after oral ingestion than does the phosphate salt. Deacetylation may result in as many as six intermediates, each with its own solubility, antibacterial and absorption characteristics, and the greater absorption of triacetyloleandomycin is attributed to one or more of these intermediates. Serum levels reach a peak two hours after oral ingestion. High levels are rapidly induced after intravenous administration. Ten to 25 percent of oleandomycin is excreted in the urine as biologically active material.

Oleandomycin is bacteriostatic and exhibits an antimicrobial spectrum similar to that of penicillin and erythromycin. *In vitro*, it is effective against micrococci, streptococci and pneumococci, certain gram-negative organisms (gonococci and *H. influenzae*), the anthrax bacillus, *Erysipelothrix rhusiopathiae*, *Corynebacterium diphtheriae*, certain clostridia and meningococci, rickettsiae, large viruses and amebae.

Clinically, oleandomycin should be used principally in infections caused by susceptible micrococci which are resistant to the more commonly used antibiotics and sulfonamides. Some cross resistance exists.

Side effects to oral administration of oleandomycin are few and mild, consisting principally of nausea, vomiting, or diarrhea. These gastrointestinal disturbances do not occur when the drug is given parenterally. Skin eruptions have also been noted. An overgrowth of nonsusceptible organisms, particularly monilia, may occur.

Dosage

Dosage is expressed in terms of oleandomycin base rather than the derivative. Triacetyloleandomycin is given orally in doses of 250 to 500 mg. every six to twelve hours, with a maximum of 3 grams daily. For children, the dose is 40 mg. per Kg. of body weight daily in divided doses.

Oleandomycin phosphate may be given intravenously in the same dosage, dissolved in the patient's regular infusions. Intravenous injection should not exceed 100 mg. per five minutes and concentrations should not be over 2 mg. per ml.

Preparations

OLEANDOMYCIN

Capsules, 125 mg. and 250 mg. (as the triacetyl derivative).

For Injection, 500 mg. (as the phosphate); vials.

Suspension, oral, 125 mg. per 5 ml. (as the triacetyl derivative).

system is the promotion of better patient care through better drug therapy—and a formulary with more extensive information can better serve this purpose. Such a formulary does not replace standard pharmacology or pharmacy or medical texts or the original literature. It does, however, provide the most useful information in a brief form in a quickly accessible location. The physician, for example, is provided a quick check on the indications, contraindications, and the usual dosage schedules. The nurse has an opportunity to check possible side effects, or the route of administration, and any unusual procedures needed to prepare for administration the preparation available. And as more and more people become involved on the nursing unit in ordering, storing and administering today's complex pharmaceuticals, such a formulary becomes a necessity as it affords them a convenient text to enlarge their knowledge during spare moments on the job.

These are some of the reasons why individual pharmacists, working with their own Pharmacy and Therapeutics Committees, have prepared informational-type formularies. Unfortunately, the time and effort required for preparation and maintenance of such a formulary is beyond the means of most hospitals and their busy pharmacists.

Need

To meet this need, the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS accepted a proposal from Dr. Don Francke to prepare and to provide to hospitals a service known as *The American Hospital Formulary*. In addition to saving some of the time and effort of many pharmacists and physicians in preparing monographs, such a national project provides greater standardization of arrangement, information and terminology, making the formulary easier to use and more acceptable to the users as they transfer from one hospital to another.

Formulary System

The formulary system is a method used by medical staffs of hospitals, working through a Pharmacy and Therapeutics Committee, to evaluate and to select from among the numerous medicinal agents available those that are considered most useful therapeutically, together with the dosage forms in which they may be administered most effectively.[3]

The Pharmacy and Therapeutics Committee of a hospital, composed of physicians and the chief pharmacist, is one aspect of medical staff self-government and represents the official, organizational line of communication and liaison between the medical staff and the pharmacy department.

Formulary Service

The American Hospital Formulary is a loose-leaf collection of monographs which the medical staff of each hospital may use in preparing its own formulary. These monographs have largely been adapted from Dr. Don Francke's *Hospital Formulary of Selected Drugs*. The adaptations and new monographs have been prepared by Marc Jordin, Ph.D., Head of the Department of Pharmacology of the University of Arkansas School of Pharmacy, and by William M. Heller, Ph.D., Chief Pharmacist of the University of Arkansas Medical Center. They are circulated to a reference committee composed of hospital pharmacists, pharmacologists, and members of other professional groups affiliated with hospitals to ensure the accuracy and usefulness of the information. Serving on the Reference Committee at this time are the following:

Dr. George Archambault, Pharmacist Director, Pharmacy Branch, Division of Hospitals, United States Public Health Service; Mr. Grover Bowles, Director, Department of Pharmacy and the Physicians and Surgeons Pharmacy, Baptist Memorial Hospital, Memphis, Tenn.; Dr. Don E. Francke, Director of Pharmacy Service, University Hospital, University of Michigan, Ann Arbor, Mich.; Mr. Edward A. Hartshorn, Chief Pharmacist, Evanston Hospital, Evanston, Ill.; Mr. Jack C. Kirkland, Pharmacist-in-Charge, Miner's Memorial Medical Center, Williamson, West Va.; Dr. Warren E. McConnell, Director of Pharmacy Services, the J. Hillis Miller Health Center, University of Florida, Gainesville, Fla.; Dr. Albert L. Picchioni, Head of the Department of Pharmacology, University of Arizona, Tucson, Ariz.; Dr. W. Arthur Purdum, Chief Pharmacist, The Johns Hopkins Hospital, Baltimore, Md.; Mrs. Evlyn Gray Scott, Director of Pharmacy Service, St. Luke's Hospital, Cleveland, Ohio.; Dr. G. Victor Rossi, Director, Department of Pharmacology, Philadelphia College of Pharmacy and Science, Philadelphia, Pa.; Mr. Vernon O. Trygstad, Director, Pharmacy Service, Veterans Administration, Washington, D.C.; and Mrs. Doris Place Morgenthau, Professor of Medical and Surgical Nursing, School of Nursing, University of Arkansas Medical Center, Little Rock, Ark.

Arrangement

The monographs of *The American Hospital Formulary* are headed by the nonproprietary name. Common synonyms and trade names are also listed. There follows a brief description of the drug and, if pertinent, comments on stability, solubility, etc. The major portion of the monograph usually involves the actions and uses of the drug and the dosage schedule of the various forms in which it is available. The monograph is completed by a list of the preparations of the drug which are most commonly used in hospitals.

The monographs are designed to be arranged by pharmacologic action and therapeutic use. Two or more monographs are sometimes included for those drugs which have more than one distinct use. However, if desired, these monographs could all be arranged alphabetically. An alphabetical index including the more common synonyms and trade names will be renewed each year. Information on prescription writing, biochemical tables, conversion tables, poison antidotes, and generally accepted rules and regulations of Pharmacy and Therapeutics Committees will also be made available. This information may be included at the discretion of the individual hospital.

What Subscription Includes

This is a subscription service. Each hospital subscribes for the number of copies desired. The first year's subscription will include (1) all monographs and other printed information being made available at that time; (2) divider sheets for separation of the monographs into their various classifications; (3) a six-ring, hard-cover binder; (for an additional charge, the name of the hospital will be gold-stamped on the cover); (4) one year of supplements consisting of additional drug monographs and, from time to time, other information.

Subscription to the supplementary service will be renewed each year. This is one of the most important aspects of *The American Hospital Formulary*. A hospital formulary soon becomes a dead weight if it is not kept alive to the needs of the medical staff. *The American Hospital Formulary* is a continuing service.

Supplements will be mailed periodically, with each subscriber receiving all the material available. Supplements will include monographs on new drugs, monographs on some older drugs not included in the original subscription, revisions of previous monographs as new uses are found, dosage schedules changed, or new preparations become popular, and a new index each year. A temporary supplementary index will be sent with each supplementary mailing.

The number of copies of the formulary to which each hospital will subscribe will vary with the needs of the hospital. Private practitioners of pharmacy and medicine will subscribe to one copy merely as a continuing source of useful, up-to-date information on drugs. However, the service is not designed to replace such publications as *Modern Drug Encyclopedia, Facts and Comparisons,* or *Physicians' Desk Reference;* they fill some needs which this service does not. It will not alter the use of the *United States Pharmacopeia,* the *National Formulary,* or *New and Nonofficial Drugs;* rather it will increase their use and strengthen them. On the other hand, no other book fills the need which *The American Hospital Formulary* is designed to meet; a loose-leaf book which can be kept up-to-date and which can be tailor-made to the desires of the medical staff of the hospital; a source containing no extraneous material, only monographs of drugs used in the hospital, including both old and new drugs, both proprietary and nonproprietary preparations; and a source including some common hospital preparations seldom described in other books. In addition, of course, the information contained in the preface and appendix is especially designed for hospitals using the formulary system.

Method of Use

The Pharmacy and Therapeutics Committee of each hospital will choose the drugs and dosage forms to be included in the formulary of its hospital. It is unlikely that any hospital will want to include all of the preparations listed in each monograph. Therefore, those preparations accepted by that hospital will need to be checked or underlined. Other preparations not widely used, especially combinations, will need to be added to the monograph by the pharmacist. Provision has been made for indicating the availability of the chemical itself so prescribers may know that it is available for compounding purposes.

Almost every medical staff uses some drugs which are not widely used in other areas and for which monographs will not be available. Monographs for such drugs may be prepared by that hospital's Pharmacy and Therapeutics Committee; or they may simply revert to the drug list style and list those additional drugs available in each pharmacologic class. Each hospital will need to supply a supplementary alphabetical index for those drugs. The index would also include hospital names and trade names common to that locality but not so common nationally.

Publication Date

The publication date for the first issue of *The American Hospital Formulary* is planned for September, 1958. Prices for 1 to 9 copies will be $15.00 each; 10 to 24 copies will be $14.50 each; 25 or more copies will be $14.00 each. We are working on a very close margin, but we may be able to provide even better prices on quantities of 100 and over. Gold stamping of the name of the hospital on the cover will be $1.00, in quantity. After the first year the annual supplements will be in the order of $5.00 and probably discounts will be available for the respective quantities. Occasionally, I suspect, a sheet will be torn from the formulary; or someone will spill Compound Benzoin Tincture on it; or it may merely become too dirty from much use. Single sheet replacements will be available.

In making the formulary service available we are primarily interested in helping hospitals achieve an active program of rational drug therapy. We believe that our service will make it more readily possible for Pharmacy and Therapeutics Committees to carry out their basic objectives. By the use of this service, medical staffs will be able to devote more time to the careful selection and evaluation of drugs. Nurses will have information readily available for use when they administer drugs and the welfare of the patient will thereby be safeguarded. We would like to see each hospital supplied with at least sufficient copies of *The American Hospital Formulary* and supplements so that there would be a copy on each nursing unit and in each clinic of the hospital where it would be instantly available for reference. Thus, in order to encourage hospitals to use the formulary service to its greatest advantage, the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS has adopted a schedule of reduced prices for multiple copies.

From time to time we expect to query subscribers to determine which monographs are most desired and for specific information on other points of the service. We solicit your cooperation in responding to these questionnaires. Only if we constantly receive your comments and suggestions can this service be made responsible to the needs of those whom it is to serve.

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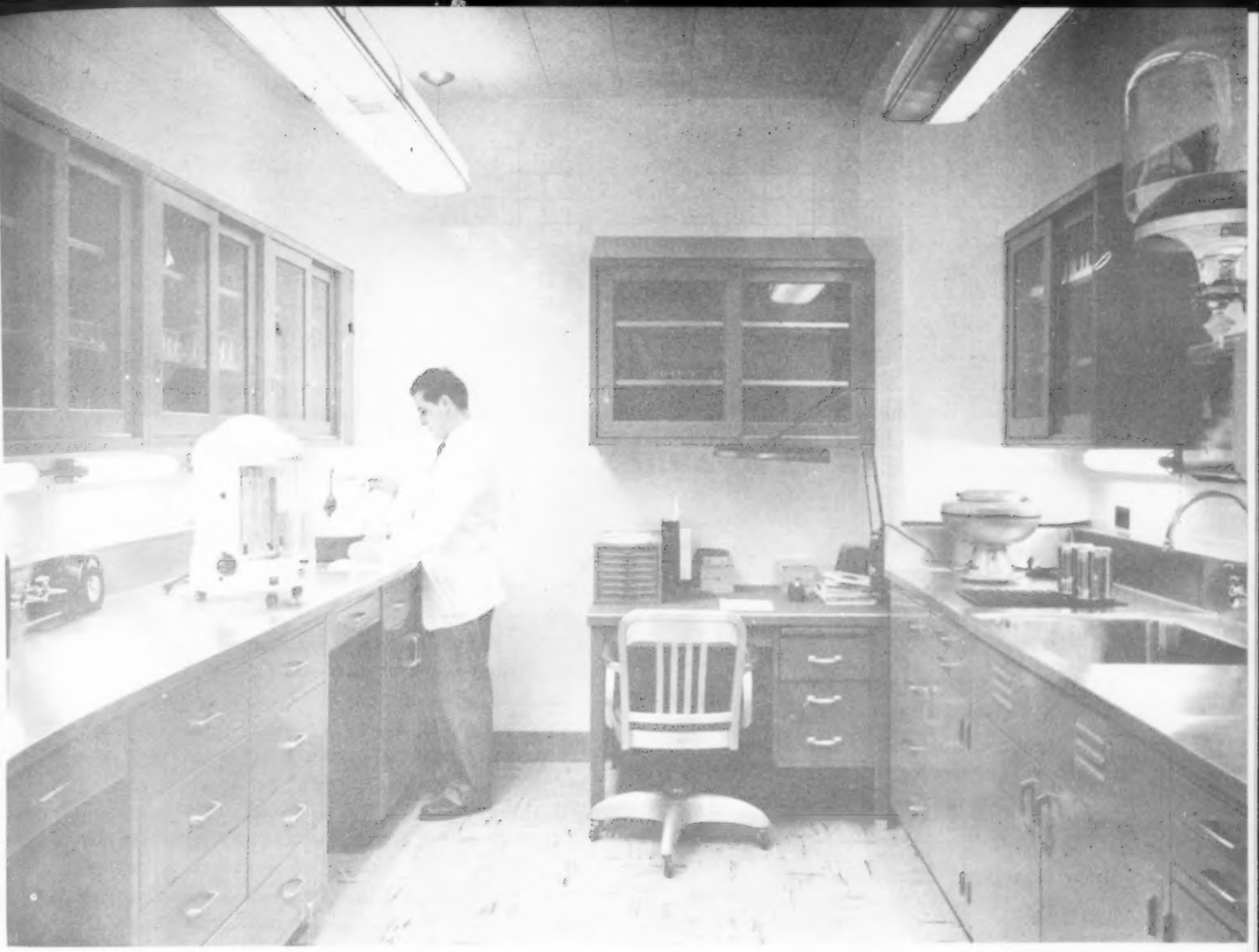

Research laboratory in the Pharmacy Department, Clinical Center, National Institutes of Health, showing Dr. John A. Scigliano

DEVELOPMENT OF RESEARCH
in hospital pharmacy

by GLENN L. JENKINS

► THE RENAISSANCE PERIOD OF HISTORY was marked by the revival of learning, by great advances in literature and in art, by the discovery of the process of printing, and by religious and political revolt. During this period, even the sciences gave evidence of an awakening. Astronomy led the way with the epoch-making discovery of Copernicus in 1530 that the sun and not the earth is the center of the solar system. Pharmacy and chemistry were less fortunate since they could free themselves only with difficulty from the mysteries and superstitions of alchemy with its vain quest for the philosopher's stone, the elixir of life, and the riches and bodily vigor their discovery would insure.

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The spirit of the times in general and especially in pharmacy and medicine was ripe for reform. The ancient school of Galen then retained its authority and dominated the medical sciences. Crude drugs collected, prepared and administered, often under suitable astronomical conditions, were employed almost exclusively for internal use together with infusions and decoctions prepared from them. Chemical compounds were used to some extent externally. The volatile oils from a few roots and herbs had been isolated through the practice of distillation. Beyond this there had been little advance. Such art and science as was known concerning drugs and medicines was largely the result of what at that time might have been called "research" performed by practicing pharmacists. When Paracelsus, after Valentine had paved the way, declared, "Chemistry is not designed to make

gold but medicines." the foundations for a renaissance in pharmacy and medicine were laid. Despite the fact that the disciples of Paracelsus failed to separate the wheat from the chaff of his doctrines, the pharmacopoeia began to improve under their influence, particularly by the introduction of inorganic chemicals and the so-called elegant preparations, tinctures and fluidextracts. What there was of science in medicine was summed up by Paracelsus in the aphorism which was accepted as an axiom by his disciples "Man is a chemical compound; his ailments are due to some alteration in his composition and can only be cured by the influence of other compounds." Thus was founded the iatrochemical school that eventually overthrew the older galenical school of thought.

Progress was made slowly by the iatrochemists. Their work established firmly the use of such chemicals as mercury, lead, iron, antimony, arsenic, and various salts. A decline in the iatrochemical influence occurred when Boyle, in the middle of the 17th century, after the ground had been cleared of the remains of alchemy, pointed the true road to chemical progress; the road guarded by diligent experiment and stringent induction wherein the theorists were also the experimenters. Chemistry then became a science in fact and iatrochemistry became a division of chemistry.

Period of Transition

The transition of iatrochemistry into pharmaceutical chemistry is not clearly marked. We think of pharmaceutical chemistry as having arisen from the works of Scheele, Serturner, Pelletier, Caventou, Baumé, Courtois, and a host of others. The results of their work were far reaching in their effects on pharmacy, medicine, botany, and chemistry. A single illustration will make this clear. Serturner working in his apothecary shop isolated morphine and described it in 1817 as a "new salifiable base." This announcement created a stir in chemical circles of that time because it completed the analogy between inorganic and organic chemistry. Inorganic chemicals long had been classified as acids, salts and bases. Organic acids and salts were known but the organic bases were lacking. Serturner's salt-forming base filled the gap in organic chemical classification for a time. When the alcohols were discovered to be the true organic bases a few years hence, the interest of most chemists in Serturner's discovery ceased. The importance of his discovery increased with time however, for (1) it marked the isolation of the first pure alkaloid from a crude drug. Thus it pointed the way and method of isolating a number of other principles such as other alkaloids and glycosides, etc. which continues in the work on hormones, vitamins, and antibiotics in our time; (2) the isolation of active principles in pure form led to their administration in place of the crude drugs and their preparations. Through the use of pure principles, the accurate control of dosage became possible in a time before analytical methods of standardization were known. The accurate control of dosage made quantitative measurements of drug action possible, so that Serturner's discovery has been said to have laid the foundation for modern pharmacology. By separating the active principle from inert matter, Serturner's discovery also paved the way for the hypodermic administration of medicines. Other discoveries in pharmacy have extensively influenced the sciences but we are more concerned with the influence of the allied sciences upon pharmacy.

Although pharmacy may quite properly be said to have mothered the great sciences of botany and chemistry, our profession ceased to keep pace after modern science came into a position of prominence in the culture of our time at about the middle of the 19th century. In the period from 1850 to 1920 when other sciences were advancing rapidly and medicine had undergone a complete educational and scientific regeneration, pharmacy placed its prime emphasis on competitive business practices. Almost the only area toward which we can point with pride was in the standardization of drugs. Graduate work which is the basis of education for research was inaugurated in only one or two schools of pharmacy prior to 1920, and even today less than one-fourth of our pharmacy schools offer first-rate graduate instruction.

A Period of Progress

During the era 1920 to 1958 we have seen the pharmaceutical manufacturing industry emerge triumphant because it has learned that research is the key to success. Certain of our schools now have well established and quite extensive graduate programs and almost one-half of them are making some effort to educate for science and research.

The practitioner level of our profession has given little support to research or to education for research. Hospital pharmacy which is the highest professional segment of practice has been the only exception. Even in hospital pharmacy research has been relegated to a subordinate position for many reasons, among them: (1) the late emergence from inactivity which changed with the founding of the ASHP; (2) concern with organization, education, accreditation, and other problems; and (3) the lack of trained manpower and facilities. Nevertheless, this Society has as one of its objectives "to promote research in hospital pharmacy practices and in pharmaceutical problems in general." It is natural for research to be in a subordinate position because the three basic functions common to a health profession are: first, the service

function which is the reason why the profession is given a special status with certain monopolistic privileges by society; second, the teaching function which relates to the instruction and upgrading of those entering as well as those practicing the professions and others with whom the professional practitioners work; third, the research function which has for its purpose the discovery of truth and the extension of the service and educational functions.

Potential for Research in Hospital Pharmacy

Although every hospital pharmacist might engage in some project under the name of research and should be encouraged to do so, the performance of the professional service function stands as an almost insurmountable barrier to research in most hospitals. It has been reported that there are between 150 and 200 large hospitals where research is established as a major activity. Certainly, there must be many more where research is given some support. Each of these large hospitals should provide the possibility of an opportunity for at least one full-time research pharmacist, especially where the hospital is situated in a university environment. Other hospitals provide some opportunity for the service pharmacist who has the interest and ability to do research. It has been said that a man need not be given free time for research; he would find time to do research if he had the spark to do it. There is some truth in this view but the spirit of research does not thrive where time and routine are of first importance.

It is not expected that the researcher in hospital pharmacy would be a lone worker. Rather it is expected that he would be a member of a team and that he would serve as an expert on drugs. Extensive specialization in pharmacology and biochemistry plus the knowledge of pharmacy should enable him to work on a wide variety of problems such as product formulation, stabilization, mechanism of action, and drug potentiation. In other words, he would be a consultant to the physician members of the team in a very important and significant manner.

A Program for Accomplishment

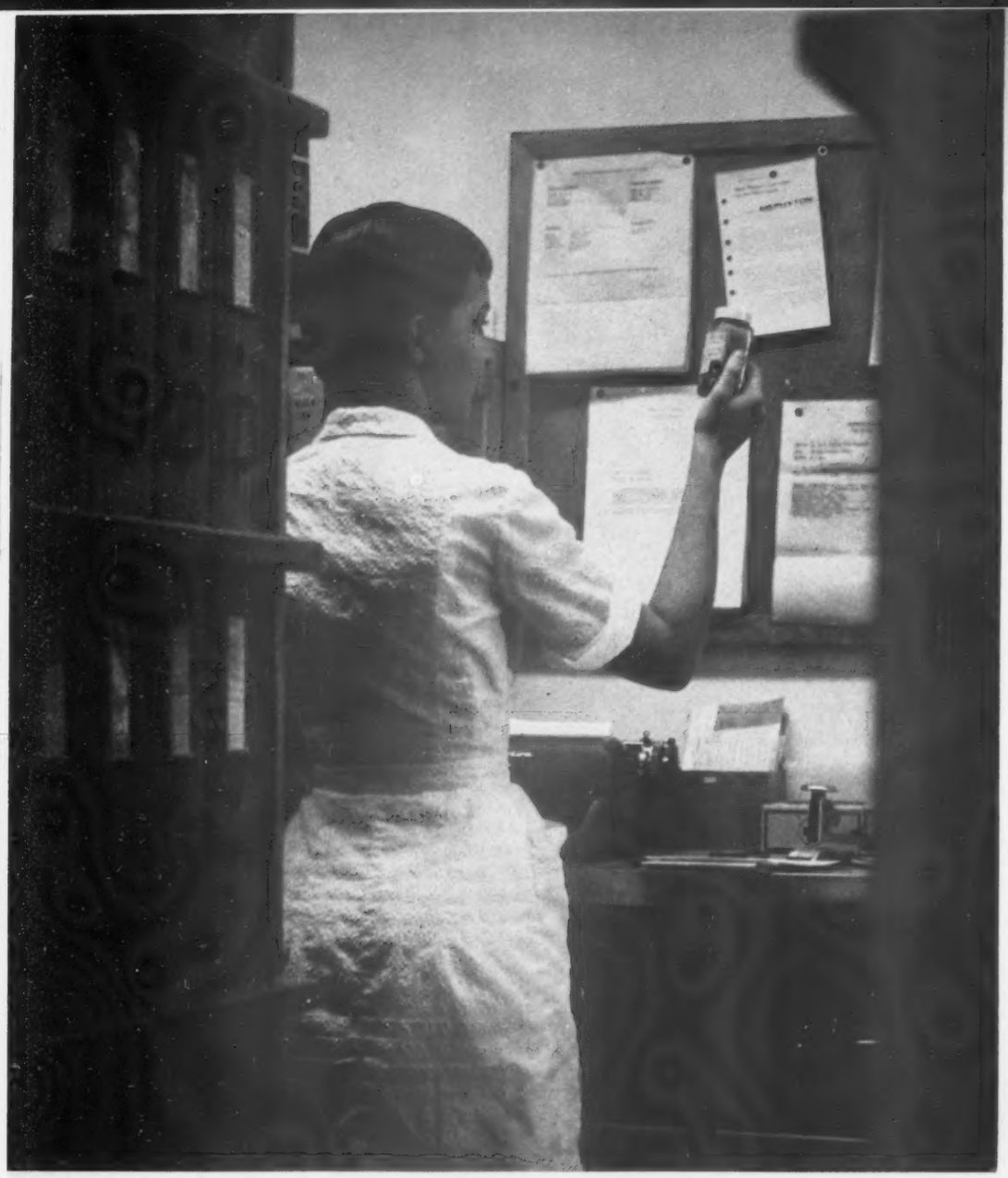
Hospital pharmacy needs to establish full-time positions in research. Certain obstacles and problems must be overcome to accomplish this objective, namely:

Positions attractive to qualified scientists must be established. This should not be overly difficult in view of the extensive research on new drugs and the abundance of financial support from industrial and governmental sources. The positions must be free from excessive administrative and service duties and permit the scientist to work in an atmosphere of understanding and encouragement.

In our zeal to extend the time span of the professional educational program we must use care to keep the door open to properly motivated young people who aspire to a life in research. Uniformity, conformity, and rigidity in our educational system can only defeat the objective of enlisting the enrollment of superior young people in the area of pharmaceutical science. Fortunately, in a program of professional education a limited number of the better students become interested in higher education and research. This interest can only be maintained if the time between the motivation and the objective is comparable to that in other areas such as chemistry and biology.

Education has developed no method of preparation for research equal or better than the graduate program. The unquestioned superiority of the system of education in such sciences as chemistry, physics, and biology where superior students who have completed the baccalaureate program are selected for advanced study is generally accepted. The extended professional program is characterized by what has been called the "convoy system" because the pace is geared to the average member of the class and actually the greatest attention is often directed at the slowest and poorest students. Ways must be found to cut through the rigidity and inflexibility of the professional program so that students who excel can be moved forward in terms of time and cost on a basis comparable to the Ph.D. in other areas.

Research is the life-blood of science. Science is the source of power for a nation, an industry or a profession in our time. A program to develop research in hospital pharmacy can yield rich dividends in prestige and values for the profession.



some special considerations in

LABELING PROBLEMS

by JACK S. HEARD

► LABELING IS AN IMPORTANT ASPECT of pharmaceutical practice yet it is often taken for granted and its importance overlooked. Perhaps this is natural with a task which too often seems so commonplace that we give it little thought. However, in many respects, labeling is a phase of our professional responsibility upon which rests the proper performance of several of our professional functions.

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Technique of Labeling

The following techniques in labeling are worthy of discussion.

I. Prescription Labeling
   A. Outpatient
   B. Inpatient
II. Floor Stock Labeling
III. Prepackaged Prescriptions
   A. Control Labels
   B. Prepared Prescription Labels
IV. Over-the-counter Labels
V. Supplementary Labels
VI. Labels on Drugs for Injection

Prescription Labeling

There are several distinguishing features in prescription labeling. Labels are usually prepared individually; they are not adaptable to machine methods. The format of the label is usually a reflection of the technique of the individual pharmacist. In large pharmacies it is usually necessary to indicate the specific information required and to specify its arrangement in order to prevent misunderstandings and minimize error.

Outpatient labels, (Figure 1) by custom, are not labeled with the name of the ingredient(s), unless the physician requests specifically that this be done. Directions, if on the prescription, are always included on the outpatient label. The pharmacist should use every opportunity to inform the physician of the importance of writing directions on all prescription labels. Those of us who work with residents, interns, and medical students can do much in this respect to assist them to acquire good habits of prescription writing. Such habits will not only benefit them in practice but will also help pharmacists with whom they later come in contact. In addition, clearly intelligible directions to the patient help to avoid misunderstandings and errors.

Inpatient prescription labels (Figure 1) differ from outpatient labels in one important respect—the name of the medication and its strength are included on the label. We must remember that one of the basic philosophies of nursing, relative to the administration of medicines, is that the nurse know what she is administering and some of the properties of the drug.

Since she obtains her directions from the physician's charted order, it is not necessary to place directions on inpatient labels. Due to the frequency with which dosage schedules are changed in many hospitals it is even considered inadvisable to put directions on these labels.

Floor Stock Labeling

Floor stock medications are those which are stocked in the inpatient unit, are at the disposal of the Nursing Service, and are not assigned to particular patients. Certain factors become very important here. Absolute clarity of the label (Figure 2) is paramount as there is no patient's name on the label to guide the user. Although the selection of floor stock medication varies greatly from one hospital to another, such stock should include only well-known and well-understood drugs. If this is done, the need for complicated labeling is eliminated.

The name of the drug and its strength are the items that should stand out on floor stock medication labels. These may be the only words other than the name of the hospital pharmacy. Dosage, antidotes, directions, etc., are given much less importance, or may be eliminated. It is a good policy to have labels for internal medication printed in blue and labels for external medication printed in red.

It will pay big dividends in time and safety if a batch of labels for every possible kind of floor stock item is printed. Prices for printed labels vary according to the number printed. It has been found worthwhile usually to have as few as 1,000 of a particular label printed.

Prepackaged Prescription Items

Prepackaged prescription items, as the term implies, are those medications which are purchased in bulk and repackaged into smaller containers of suitable

Fig. 1. Examples of labels for outpatients and inpatients, also large and small control labels

size. Such prescription items are then ready for immediate dispensing. The paramount principle to be observed in prepackaging drugs is to be sure that the container is adequately labeled and includes control numbers. Control labels are small labels placed on a prepackaged container. They are not intended for use by the patient. They should contain in abbreviated form the name, dosage, quantity, and the control number of the particular batch of drugs being packaged.

Some hospitals use a perforated control label printed in duplicate. One-half of the label is firmly affixed to the container while the other half is loose so that it may be easily torn off at the perforation. When the prescription is filled, the loose part of the control label is removed and pasted on the original prescription form. Later, if the need arises, a comparison may be made of the control label which remains affixed to the prescription container and the label which has been pasted on the original prescription form.

Other hospitals use a single control label which is removed at the time the prescription is dispensed and a prescription label is affixed.

The labels used at the University of California Hospital at Los Angeles for this purpose are gummed, "peel-off" variety (Figure 1). They are supplied in rolls, printed by machine, and applied by stripping them off the paper backing and pressing lightly to the surface of the prescription container. The printing machines for these labels are easy to set up and to operate. The Monarch Marking System Company of Dayton, Ohio and Los Angeles, supplies a variety of machines and labels for this purpose. These labels ("Senso" labels) are very useful for marking many other items in the pharmacy.

Prescription labels are sometimes preprinted with standard directions. These may be used in one of two ways. They may be affixed to the prepackaged medication containers which are thus ready for immediate dispensing. Or the name of the patient and the physician may be typed on the label before it is affixed to the container. The first method is sometimes used when a dispensing unit serves a large volume of patients who are the beneficiaries of one organization. Examples of these might be student health services, county patients, and patients served

Fig. 2. Floor stock labels printed red on white or blue on white

by the Indian Service or Veterans Administration.

The Monarch 60 marking machine (Figures 3 and 4) prints a label suitable for this type of use. Control numbers should be used either on the label or on a small attached label. Naturally, there must be close cooperation between Pharmacy Service, Nursing Service, and Medical Staff to assure up-to-date drugs and therapy. Such a prepackaging and prelabeling program should be kept dynamic and not be allowed to stagnate with outmoded drugs and labeling techniques.

Over-the-Counter Labels

In most outpatient services some items will be sold or given to patients without prescriptions. Prepared labels for these non-prescription items are available from label companies. These labels contain necessary dosage information, warnings, antidotes, and supplementary information. A complete line of these labels should be carried. They are easily ordered from a prepared order form and cost only about 15 cents per 100. The strip label with the name of the pharmacy may be added, or the labels may be printed with the name of the pharmacy on them.

Supplementary Labels

The myriad of little supplementary or auxiliary labels are often taken for granted. They should not be overlooked in any labeling program. A supply of each type should be available at each label preparation station. Common varieties are *External Use, Shake Well, Eye, Ear and Nose, Store in Refrigerator, Not to be Refilled,* and *Drop Dosage.* It is well to use these on inpatient and outpatient prescriptions and on labels for over-the-counter drugs.

One example, from actual experience, illustrates the value of these labels. A prepackaged dropper bottle of Potassium Iodide Saturated Solution was dispensed in error in place of Phenylephrine Nasal Solution. When the patient complained of a feeling of burning in the nostrils, the error was discovered by checking the prepackage control label the pharmacist had removed from the bottle and attached to the original prescription form. A routine procedure was then instituted wherein a *Drop Dosage Only* label is placed on Potassium Iodide Saturated Solution at the time of prepackaging, and a *For the Nose* label is placed on Phenylephrine Nasal Solution. This extra precaution has helped prevent a repetition of the previous mishap which, fortunately, did not result in serious damage.

Pharmacists who need to use frequently supplementary labels reading *Corrosive, Flammable, Poison,* or *Radioactive* will be interested in the Caution Label Dispenser available from Fisher Scientific Company. It holds rolls of 200 each of these labels and is convenient for dispensing them.

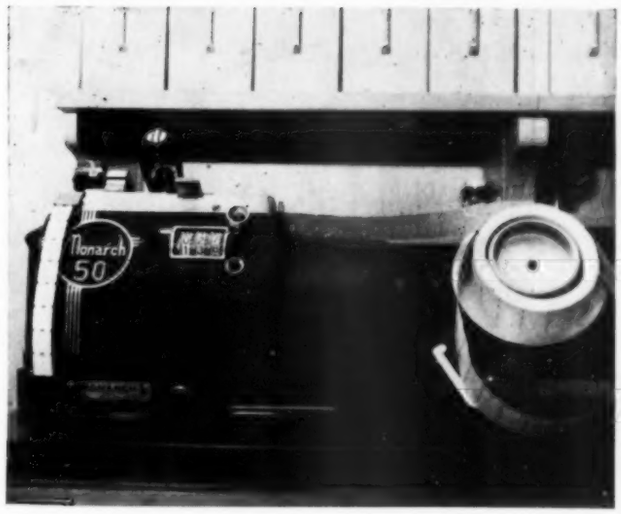
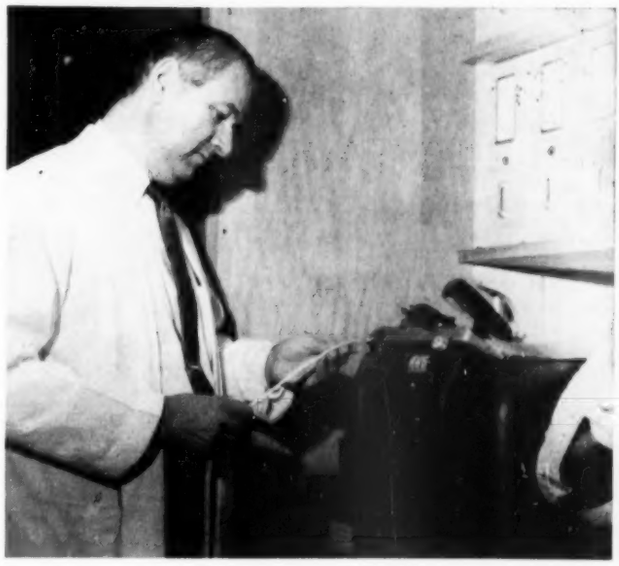


Fig. 3 and 4. Monarch 60 marking machine has numerous uses in labeling of medication for inpatients and outpatients



Labels on Injectable Materials

With increasing emphasis on preparing injectable materials in the pharmacy department, the importance of labeling increases correspondingly. Experience in this field has indicated that when planning the manufacture of a new injectable, the label should be designed, printed and ready for the first batch. This procedure insures accuracy and has a good psychological effect on the user.

The following points are important in the labeling of large volume parenteral solutions: (1) Be sure the name of the drug is clear and stands out prominently; (2) Include a statement such as "Do not use unless solution is clear and vacuum is present;" and (3) For certain items for which dosage is particularly critical, such as potassium chloride solutions, the figures denoting the strength or concentration of the salt should be prominent (Figure 5).

Fig. 5. Examples of labels for injectable medication, note warning statements and precautions on each of the labels

Control labels should be used on all batches of parenteral solutions, both large and small volume.

Responsibility for Labeling

The pharmacy department has prime responsibility for labeling all medication used in the hospital. In large installations some controlled labeling may have to be delegated to nursing services. Such instances may occur with dressing carts, and in other situations where many small bottles must be refilled frequently from stock bottles.

Final responsibility within the pharmacy for labeling rests with the pharmacist supervising the operation. Lay personnel may do a considerable part of the labeling and can prepare and apply labels for batches of materials. All important is a check of *each phase* of the labeling procedure by a pharmacist.

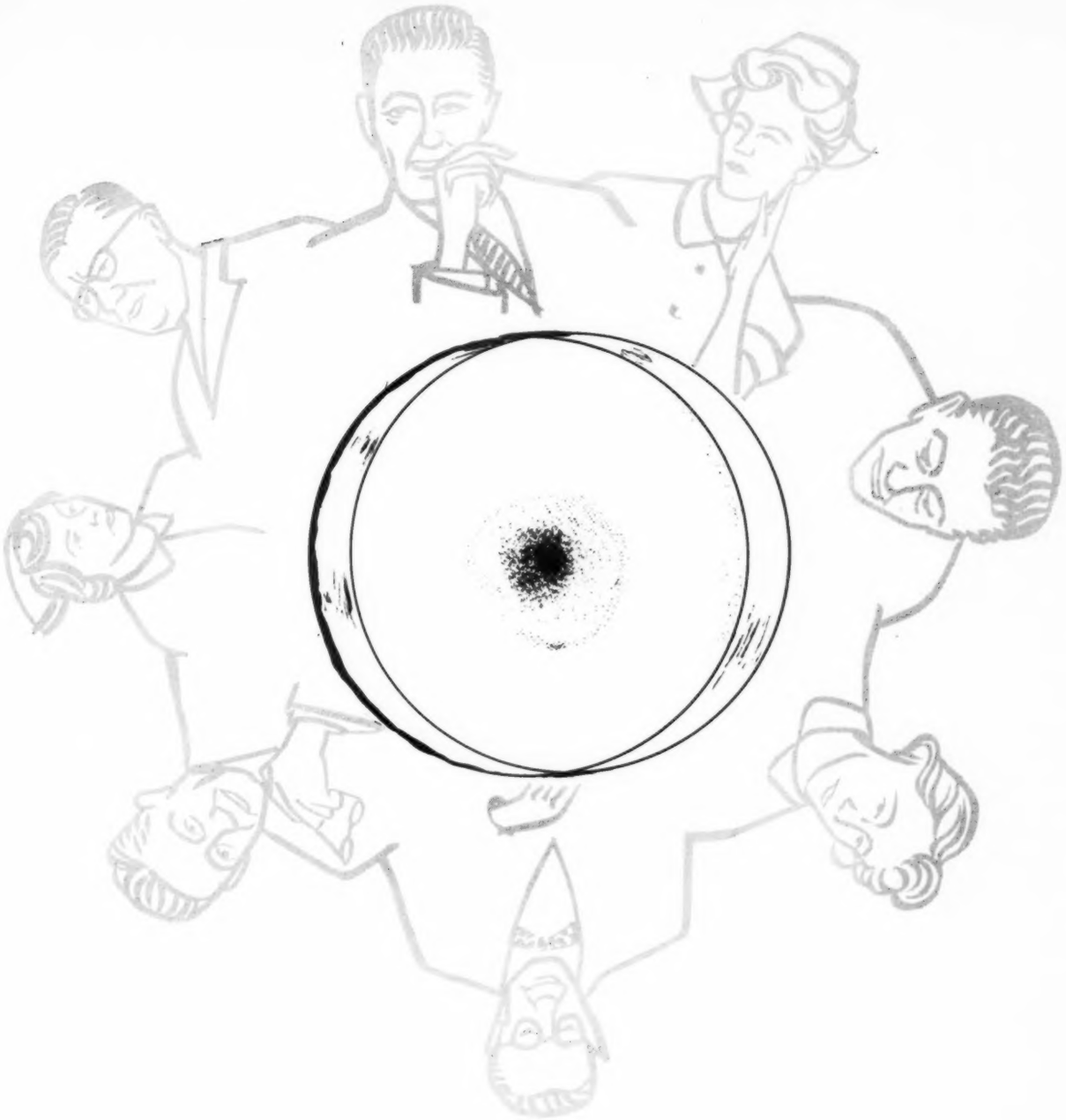
Machine Techniques

It is sometimes believed that one's volume must be very large before machines are economically feasible. That this is sometimes overemphasized may be illustrated by the following experiences. In prepackaging prescriptions for the student health service, the use of a Multistamp outfit (hand stamping kit) saved much time over typing labels for 100 or more similar items. Use of the Monarch printing machine, again, has saved a large part of the time used in operating the Multistamp.

Even for small volume injections not frequently used, such as Sodium Citrate Solution, machine methods are more efficient. In the prepackaging of prescriptions for outpatients, machine methods are feasible when 50 or more identical labels are prepared. In addition, machine prepared labels are usually superior in appearance to hand stamped labels.

Conclusion

Labeling of medication is an important professional responsibility of the hospital pharmacist. The manner in which he assumes this responsibility affects the hospital, the patient, the physician, the nurse—and pharmacy as a profession.



the role of an ANTIBIOTICS COMMITTEE of the medical staff

by SISTER M. REBECCA

► THE DISCOVERY AND DEVELOPMENT OF THE GREAT number of antibiotics has done more, perhaps, to control and conquer infectious diseases than any other single factor. Yet the wonderful has become commonplace, and we take these wonder drugs for granted. Unfortunately, so do many of the bacteria, and one of our major concerns in antibiotic therapy today is how to cope with the ever-growing problem of increasing bacterial resistance.

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CRITERIA FOR EVALUATING USE OF ANTIBIOTICS:

1. FRANK INDICATION IN CASES RESISTANT TO OLDER ANTIBIOTICS
2. SERIOUS NATURE OF INFECTION
3. ORGANISM PROVED SENSITIVE TO ANTIBIOTIC USED BY LABORATORY TESTS.
4. ADEQUATE DOSAGE SCHEDULE
5. LABORATORY TESTS AS INDICATED

PATIENT	PRIMARY DIAGNOSIS	ANTIBIOTIC USED	BACTERIOLOGY	SENSITIVITY TESTS	APPARENT REASON FOR USE OF ANTIBIOTIC	REMARKS, OPINION OF BOARD
57,3549 F, 22	Bacterial endocarditis due to *Staph. aureus*	Novobiocin	Blood culture: hemolytic *Staph. aureus*	VS: erythromycin, magnamycin, Terramycin, tetracycline S: chlortetracycline, chloramphenicol, novobiocin, streptomycin, polymyxin	Overwhelming staphylococcal endocarditis	Use justified in view of serious nature of infection. Other antibiotics were used.
58-99 M, 42	Chronic abscess of breast due to hemolytic *Staph. aureus*	Novobiocin-tetracycline combination	Breast tissue culture: hemolytic *Staph. aureus*	S: chloramphenicol, streptomycin, erythromycin, neomycin, magnamycin, bacitracin, novobiocin, oleandomycin, Furadantin	Chronic staphylococcal infection	Patient was afebrile. Suggest trying other antibiotics to which organism was shown sensitive.
47-6567 F-57	Retroversion of uterus, cervical metaplasia, chronic cervicitis	Novobiocin	None	None	Not Apparent	Not justified
57-1084 M, 1	Acute bronchitis; cystic fibrosis of pancreas, congenital defect of heart, decompensation	Novobiocin	None	None	Respiratory infection in seriously chronically ill child with cystic fibrosis of pancreas and congenital heart disease	Bacteriologic studies should have been made to determine proper antibiotic use
58-710 F, 29	Ectopic pregnancy	Novobiocin	Vaginal culture: *Staph. aureus* *A. aerogenes*	None	No reason apparent to board (fever presumably due to bleeding into peritoneal cavity)	Not justified
58-620 F, 4	Lobar pneumonia involving right, middle and lower lobes	Oleandomycin-tetracycline combination	Throat culture: *D. pneumoniae*, hemolytic *Staph. aureus*, *N. catarrhalis*	None	Lobar pneumonia with culture findings of hemolytic *Staph. aureus* clinically becoming worse under penicillin therapy	Apparently justified, but other drugs might have been used if sensitivity tests had been done
55-1846 M, 35	Post-phlebitic syndrome and ulcer, left leg	Triacetyl-oleandomycin	None	None	Serious chronic infection with multiple organisms including Staph. (identified on other admissions)	Small dose of ten capsules unlikely to alter infection and likely to induce bacterial resistance to the drug
52-188 F, 75	Old rheumatic heart disease with auricular fibrillation. Staph. enterocolitis with intestinal obstruction due to mesenteric thrombosis	Novobiocin, Oleandomycin	Stool culture: hemolytic *Staph. aureus*, *A. aerogenes*, *E. coli*, *A. faecalis*, yeast Sputum culture: *Staph. aureus*, alpha strep, *D. pneumoniae*, *E. coli* Blood culture: *A. faecalis*	Stool organisms: S: chloramphenicol, neomycin, Furadantin Blood organisms: S: neomycin SS: chlortetracycline, oxytetracycline, tetracycline Yeast organisms: S: nystatin R: novobiocin oleandomycin	Staphylococcal enterocolitis	Why were novobiocin and oleandomycin used when laboratory sensitivity tests showed organisms to be resistant?
58-986 M, 11 days	Cellulitis of subcutaneous tissue of left breast, Acute pharyngitis	Novobiocin	Left breast abscess culture: hemolytic *Staph. aureus*	S: bacitracin, neomycin, Furadantin, erythromycin R: novobiocin (Incision, drainage, and culture done on 4th hospital day - results of test on 6th hosp. day)	Known resistant Staph. infection and culture not immediately available	Use justified in view of Staph. infection in infant.

Problem Posed

In our hospital the initial move in the attempt to meet this problem came from several members of the medical staff at the time that novobiocin was released for clinical use. The following suggestion was made at a medical staff meeting: The medical staff should adopt some means of controlling the use of novobiocin in order to retard the development of resistant strains of bacteria, and to reserve the use of the drug for those cases in which it is highly indicated—principally staphylococcal infections—and which have proved unresponsive to other antibiotic therapy.

The matter was discussed by the Pharmacy Committee which felt that not only novobiocin, but all new antibiotics, should be subject to similar control. The Pharmacy Committee referred the problem together with their recommendations to the Executive Committee which was in complete agreement and directed the creation of an Antibiotic Board consisting of the pathologist, the pharmacist, and a staff physician.

Objectives

Accordingly, the newly created Antibiotics Board met and defined its objects:

1. To study methods of restricting the use of new antibiotics to those cases in which they are highly effective and clearly indicated.
2. To offer recommendations for rational therapy to the medical staff.

These objectives to be accomplished by:

1. A current record (maintained by the pharmacist) of patients receiving new antibiotics, this record to contain the following data:
   a. Patient's name, case number, and room number
   b. Date
   c. Kind and quantity of antibiotics dispensed
   d. Dosage schedule employed
   e. Indication for use (diagnosis)
   f. Laboratory culture sensitivity data
   g. Results
2. A monthly review of the charts of these patients by the Antibiotics Board.

Criteria Established

To aid them in evaluating the use of a new antibiotic the Board outlined the following criteria:

1. Frank indication for its use in cases resistant to older antibiotics.
2. Infection treated must be of a serious nature.
3. Organism must be proved sensitive to the antibiotic by laboratory sensitivity test.
4. Dosage schedule must be adequate for a sufficient length of time.
5. Regular, total, and differential blood counts and/or other laboratory tests as indicated must be done.

Evaluation

The success of this venture was doubted by some who remarked that we might decrease "staph" resistance by increasing "staff" resistance. However, time has proved the latter to be negligible.

Since its inception about 18 months ago, the Antibiotics Board has met and prepared quarterly reports entitled "Antibiotics Board Review." These reports are prepared in chart form and contain the following data:

1. Sex and age of patient
2. Primary diagnosis
3. Antibiotic used
4. Bacteriology
5. Sensitivity tests
6. Apparent reason for use of antibiotic
7. Opinion of Board

The Antibiotics Review is sent to every physician on the medical staff. An example of chart prepared by the Antibiotic Board is shown on the adjacent page. The Board attempts to keep the Review as objective as possible, letting the facts speak for themselves. And apparently they do; for without obnoxious dictating or coercing, the Board is increasingly aware of the rational use of new antibiotics by the medical staff. The results are well worth the effort.

During a visit to a nursing station, Mr. Hartshorn of Evanston Hospital explains to the students how drugs are ordered on a patient's chart

STUDENT VISITATION PROGRAM

sponsored by the Hospital Pharmacists

by EDGAR DUNCAN

► A STUDENT VISITATION DAY PROGRAM, designed to interest senior students in hospital pharmacy, was conducted by the Illinois Society of Hospital Pharmacists on January 14, 1958 in Chicago. The program was sponsored by the Illinois Hospital Association, the Chicago Hospital Council, in cooperation with the University of Chicago Clinics, Evanston Hospital, U. S. Public Health Service Hospital, Provident Hospital, Presbyterian-St. Luke's Hospital, Michael Reese Hospital, and Louis A. Weiss Memorial Hospital.

Plans for the student visitation program were developed by the Student Vocational Committee of the Illinois Society of Hospital Pharmacists. The responsibility of the Vocational Committee is (1) to stimulate the entrance of more students into pharmacy by means of high school career day activities, (2) to conduct a program of student visitation, (3) to promote pharmacy student membership, and (4) to coordinate the above objectives with the local branch of the American Pharmaceutical Association.

At its first meeting in October, 1957, the Committee suggested adopting a student visitation program as a major activity during this school year. Ten days later a meeting was held with the officials from the School of Pharmacy of the University of Illinois in order to evaluate the possibilities of such a program. During this meeting the members of the Vocational Committee stressed this program as an educational feature rather than a proselytizing recruitment venture. This approach was well received.

In November the Committee met and formulated a plan to be presented to the Student Committee of the University of Illinois. Dr. Dunbar was chairman of this Committee. During the November meeting of the Illinois Society, the group was authorized to proceed with plans to provide a tour of hospitals for senior students, to arrange a dinner for the students, and to invite them to the evening program. This plan was accepted by the faculty of the School of Pharmacy of the University of Illinois.

In January the senior students were polled regarding the hospital they wished to visit. The students were released from classes in order to participate in the day's program. In the final stages, President W. J. Durant of the Illinois Society notified the pharmacists conducting the tours as to the number of students expected. Programs were printed and distributed to hospitals in packets, ready for distribution to the students. These packets contained a copy of the April 1957 issue of the *Journal of the American Pharmaceutical Association, Practical Pharmacy Edition,* which was devoted to hospital pharmacy. Also included were a copy of the Minimum Standard and a short quiz on informative hospital statistics.

Many favorable comments were received regarding the hospital tours. Undoubtedly, new student interest in hospital pharmacy was engendered through seeing hospital pharmacy and hospital activities first hand. This was the goal and it was reached.

Hardly before the day was over, the strong were thinking of next year's program. Everybody—students, faculty, and hospital pharmacists—were enthusiastic about the results of the program. The students felt that it was an exceptionally fine demonstration of professional pharmacy in action.

Program
Student Visitation Day

January 14, 1958

2:00 P.M. Arrive at selected hospital
2:15 P.M. Orientation by the chief pharmacist
2:30 P.M. Touring of selected departments
1. Clinical Laboratories
2. X-Ray Department
3. Operating Room
4. Blood Bank
5. Physical Therapy
6. Maintenance Shop
7. Boiler Room
8. Purchases and Central Stores
9. Central Service Department
10. Outpatient Department
11. Admitting Office
12. Emergency Room
13. Research Laboratories
14. Housekeeping Department
15. Pediatric Department
16. Recovery Room

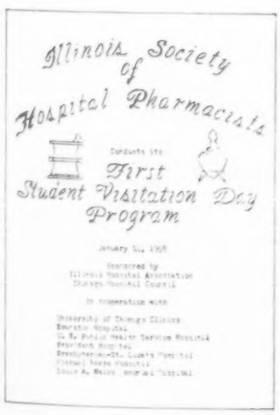
4:00 P.M. Interviews with staff representatives of the following departments:
1. Administrative Staff
2. Medical Staff
3. Nursing Staff

4:30 P.M. Return to pharmacy and summary of tour
5:30 P.M. Dinner at hospital restaurant
8:00 P.M. Regular monthly meeting of I.S.H.P. at U. S. Public Health Service Hospital
Theme: Hospital Problems Affecting the Pharmacy Department
Panel discussion on interdepartmental problems
Moderator: Mr. Howard Cook, Administrator, Community Hospital
Panel Members: Mr. Louis Gdalman, Director of Pharmacy, Presbyterian-St. Luke's Hospital; Miss May Werrbach, Nursing Supervisor, Chicago Wesley Memorial Hospital; Mr. Robert Borczon, Staff Representative (Accounting), American Hospital Association; Warren C. Jenkins, M.D., Community Hospital.

Chief Pharmacist Charles Lev of Michael Reese Hospital is shown with the students as he conducts them on a tour of the Pharmacy Department

Above, pharmacy students visiting Provident Hospital are shown talking to Mrs. Kate Whitfield, Chief Pharmacist. Dr. Dunbar is shown on the far left

Right, Mr. Clyde L. Reynolds, Administrator of Provident Hospital, is shown talking with a group of students as Dr Dunbar (far right) looks on



Students from the University of Illinois School of Pharmacy are greeted by Mr. John Reinertsen, Associate Administrator, who is shown standing next to Mr. Edward Hartshorn, Chief Pharmacist at Evanston Hospital

CONVENTION STORY

LOS ANGELES

► MEMBERS OF THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS met in Los Angeles, California for the Fifteenth Annual Meeting on April 20, 21 and 22. With representation of 37 of the SOCIETY's 49 affiliated chapters and members from all parts of the country, participation and activity in many areas was evident. The Business Sessions, presided over by Mr. Leo Godley, as well as the Program under the chairmanship of Mr. Walter Frazier, were outstanding in every way.

That your SOCIETY is a dynamic organization, truly representative of hospital pharmacy practice in the United States, was apparent from the interest and enthusiasm shown at the Los Angeles Meeting. The detailed reports from the Officers and Committee Chairmen, the caliber of the program and the high level of participation by delegates and members revealed a SOCIETY backed by leadership, high ideals and a determined purpose.

Above, President Leo Godley congratulates President-Elect Bogash at the installation ceremonies. Below, Walter Frazier, right, receiving the Whitney Award from Clifton Latiolais

In President Godley's Address—a highlight of the meeting—he reviewed the activities of the year from the standpoint of the office of the President and the work of the Executive Committee. In addition to the other reports on SOCIETY activities, Dr. Robert P. Fischelis and Mr. Paul Parker summarized the contributions and activities in the Division of Hospital Pharmacy of the A.Ph.A. and ASHP.

During the business sessions, twenty resolutions were adopted (see page 510 for complete text). Among the significant resolutions passed at the 1958 Annual Meeting were those calling for an increase in membership dues to ten dollars and a change in the title of the Secretary to Executive Secretary.

Complete proceedings of the Annual Meeting including minutes, reports of officers and committee chairmen will appear in the August issue of the JOURNAL. To the extent possible, the papers presented will also be published during the next several months.

House of Delegates

The Address of President-Elect, Robert Bogash, at the House of Delegates' Meeting on Sunday assured the membership of another important year ahead. Mr. Bogash, in his own words, presented ". . . a prospectus, a promise of things to come . . ." and pledged his full support to the membership in carrying SOCIETY activities forward during the coming year.

The roll call in the House of Delegates was responded to by fifty-five accredited delegates representing the affiliated chapters, members of the Executive Committee, and the Chairmen of Special Committees. Also participating were Fraternal Delegates from the various government agencies and representatives from allied hospital and pharmacy groups. Fraternal delegates included Lieutenant Colonel William L. Austin, Department of the Army; Colonel Leonard P. Zagelow, Department of the Air Force; Mr. Vernon O. Trygstad, Veterans Administration; Lieutenant Commander S. C. Pflag, Department of the Navy; Mr. Allen Brands, U. S. Public Health Service; and Mr. Thomas Foster, Office of Defense Mobilization.

Dr. Joseph Burt, President of the American Phar-

ASHP General Session in Los Angeles

maceutical Association, brought greetings on behalf of the parent organization at the First General Session. Also participating in the meetings were Mr. M. R. Kneifl of the Catholic Hospital Association and Mr. Rex Olsen of the American Hospital Association.

Program

Presentation of plans for "Application and Use of the American Hospital Formulary Service" was perhaps one of the most significant on the program. The paper, along with plans for publication as worked out by a Special Committee and approved by the Executive Committee, was discussed by Dr. William Heller, Director of the Formulary Service. This paper is published in full in this issue of the JOURNAL.

Coupled with this and of great interest in developing the Formulary Service was a discussion of "Rational Drug Therapy" by Dr. Austin Smith, Editor of the *Journal of the American Medical Association*. He discussed the role which hospital pharmacists can take in promoting rational drug therapy and urged that the formulary *not* be an economic aid but rather an adjunct in an educational program.

Other guest speakers at the 1958 ASHP meeting included Dean Glenn L. Jenkins of the Purdue University School of Pharmacy who spoke on "Development of Research in Hospital Pharmacy," Dr. Carl A. Lawrence of the Los Angeles County Health Department who discussed "Current Trends in Germicides," and Dr. William L. Hewitt of the University of California Medical Center speaking on "Current Trends in Antibiotic Therapy."

Numerous other papers covering many areas of pharmacy practice were presented by ASHP members, offering a stimulating program throughout the Meeting.

Memoriam to Whitney and Spease

It was most appropriate that the SOCIETY in General Session at this 1958 Annual Meeting should pay special tribute to two Honorary Members who have died during the past year—Harvey A. K. Whitney and Edward W. Spease. This was carried out in an impressive manner at the opening of the First General Session by Dr. Glenn Sonnedecker, Director of the American Institute of the History of Pharmacy. The Memoriam is published in full on pages 507 to 509.

Some of the speakers at ASHP sessions, left to right: Dr. Carl Lawrence, Dean Glenn L. Jenkins, and Dr. Austin Smith

Whitney Award Dinner

Presentation of the 1958 H. A. K. Whitney Award to Mr. Walter M. Frazier was a highlight of the Annual Meeting. In tributes paid to Mr. Frazier by Dr. Don E. Francke representing the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, by Robert P. Fischelis of the American Pharmaceutical Association, by Mr. M. R. Kneifl of the Catholic Hospital Association, and by Mr. Joseph Oddis (presented by Mr. Rex Olsen in the absence of Mr. Oddis) of the American Hospital Association, the recipient was praised for his outstanding contributions to hospital pharmacy and to the profession. Of particular mention were his unselfish devotion to the profession and to hospital pharmacy and the ideals propounded in carrying forward his work as a pharmacist.

A memento of the award in the form of a plaque was presented by Mr. Clifton Latiolais representing the Michigan Society of Hospital Pharmacists. The plaque reads as follows:

In Recognition

Whereas Walter M. Frazier has contributed so much of his time and efforts toward the advancement of hospital pharmacy

Now therefore be it resolved that the Michigan Society of Hospital Pharmacists present the H. A. K. Whitney Lecture Award to him for his outstanding contributions.

On presentation of the Award and following Mr. Frazier's Lecture on "The Authority of Ideas," the members and guests present responded with a standing ovation. Mr. Frazier's address will be published in a forthcoming issue of the JOURNAL.

Honorary Members Elected

According to the SOCIETY'S Constitution and By-Laws, "Nominations for honorary members shall be approved by unanimous vote of the Executive Committee and shall be presented for vote of the membership at the Annual Meeting."

Thus, an impressive moment at this year's Annual Meeting was when President Godley, on behalf of the Executive Committee, presented the names of Dr. Robert P. Fischelis and Mr. M. R. Kneifl for Honorary Membership in the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS. The assembly paid special tribute to both of these men when, on election to honorary membership, there was unanimous acclaim and a standing ovation. (See insert page 505).

Local Participation

A special "Thanks" is due the members of the Southern California Society of Hospital Pharmacists headed by Mr. Joseph Beckerman and the Local Com-

Newly installed ASHP officers, left to right: Gloria N. Francke, Executive Secretary; Sister M. Berenice, Treasurer; Robert C. Bogash, President; and Clifton Latiolais, Vice President

Fischelis and Kneifl named honorary members of the Society

Robert P. Fischelis

Secretary and General Manager of the American Pharmaceutical Association, leader in American Pharmacy, prolific author of numerous publications in pharmacy, and ardent advocate of high ideals in our profession:

in recognition of his outstanding work in behalf of hospital pharmacy in the United States, his wise counsel and helpful guidance to the Executive Committee of the Society, its officers, and committees, and his creative genius which evolved a method whereby the efforts of the American Pharmaceutical Association and the American Society of Hospital Pharmacists in the field of hospital pharmacy could be focused in a united service unit—the Division of Hospital Pharmacy;

in recognition of these outstanding contributions, the Executive Committee of the Society unanimously nominates Dr. Robert P. Fischelis as an Honorary Member of the American Society of Hospital Pharmacists.

Michael Raymond Kneifl

Executive Secretary of the Catholic Hospital Association, Faculty Member at St. Louis University, Managing Editor of Hospital Progress, champion of educational and administrative standards of hospital pharmacy:

in recognition of his advocacy of the role of the institute as an educational process in developing better hospital pharmacists; his creation of the point-rating techniques for evaluating hospital pharmacy practice; his leadership in the establishment of policy manuals as administrative guides in hospital pharmacy; his enthusiastic interest and support of hospital pharmacy at all times;

in recognition of these outstanding contributions, the Executive Committee of the Society unanimously nominates Mr. M. R. Kneifl as an Honorary Member of the American Society of Hospital Pharmacists.

Sister Mary Berenice presents a Blessing from Pope Pius XII to the ASHP. Mr. Paul Parker accepts the Document on behalf of the Society. The Blessing reads as follows:

Most Holy Father
The Members of the American Society of Hospital Pharmacists
humbly prostrate at the Throne of your Holiness, beg the Apostolic Blessing, as an enduring pledge of copious divine grace and heavenly favour.

Peramanter in Domino
Pius pp. XII (personally signed)

mittee, chaired by Mr. Jack Heard. Arrangements for special events—including the buffet dinner on Sunday, the Whitney Award Dinner on Monday, the breakfast which is a traditional ASHP event on Tuesday, special luncheons and tours during the week, providing hostesses in the ASHP Suite, and a hospitality committee at the registration desk—were all coordinated most efficiently by hospital pharmacists of the Southern California Society. Mention should also be made of the cooperation from the other two ASHP affiliated chapters in California—the Northern California Society and the San Diego Chapter.

Special Events

Hospital pharmacists were guests of the pharmaceutical firms at special events during the Annual Meeting. Following the Sunday evening social hour, sponsored by the three ASHP affiliates in California, Winthrop Laboratories entertained at a Buffet Dinner.

E. R. Squibb and Sons entertained the Sister's group at a tea on Monday afternoon and sponsored a social hour prior to the H. A. K. Whitney Award Dinner. Flowers for the dinner were provided by Burroughs Wellcome and Company.

At the traditional ASHP breakfast on Tuesday morning, hospital pharmacists were guests of the Upjohn Company.

Hospital pharmacists engaged in research activities as a result of having received grants under the ASHP's research and development program were honored at a dinner during the Convention. The SOCIETY's research program was initiated by Lederle Laboratories Division, American Cyanamid Company in 1956 to support research and developmental activities in hospital pharmacy practice, administration, services, education or general welfare.

Recipients of research grants are selected by the ASHP's Committee on Research and Development with the approval of the Executive Committee. During 1957, ten hospital pharmacists received financial support from the SOCIETY's Research Fund to investigate various problems related to hospital pharmacy.

Hospital pharmacists attending the Annual Meeting of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS were guests of Roche Laboratories at a luncheon held at the Beverly Hilton Hotel in Los Angeles. The guest speaker, Mr. George N. Wagner, Regional Sales Manager, (Beverly Hills, Calif.), Roche Laboratories, discussed the relationship between the formulary system in hospitals and the pharmaceutical manufacturing industry. Following the luncheon, hospital pharmacists visited the University of California Medical Center and the Veterans Administration Center in Los Angeles.

A luncheon and tour of Baxter laboratories was also scheduled for hospital pharmacists during the Convention.

Coffee was made available in the ASHP Suite during the week by Eli Lilly and Company.

Nominations

Nominations for officers for the 1959-60 term were presented by the Committee on Nominations, headed by Sister Mary Florentine, and approved at the Final Business Session. Accordingly, nominees are as follows:

For President: Jack Heard, Los Angeles, Calif., and William Heller, Little Rock, Ark.

For Vice-President: R. David Anderson, Staunton, Va., and Vernon Trygstad, Washington, D. C.

For Treasurer (for a three-year term): Sister Mary Berenice, St. Louis, Mo., and Sister Mary Gonzales, Pittsburgh, Pa.

The Secretary is elected for a three-year term by the House of Delegates on the Nomination from the Executive Committee. Mrs. Gloria Francke was elected at the 1958 Annual Meeting.

HARVEY A. K. WHITNEY and EDWARD SPEASE

. . . . in memoriam

by GLENN SONNEDECKER

► THE ONLY TWO HONORARY MEMBERS THIS SOCIETY ever knew have died. This bitter fact seems symbolic. Dare we not say that the end of their lives—lives that gave something to each of us here—also might signify the end of a period in American hospital pharmacy. Harvey Whitney and Edward Spease were pioneers, who shared the excitement and the pain of breaking ground in a fertile but poorly tilled land of pharmaceutical service.

If American hospital pharmacy outgrew adolescence as these men grew old, the new age of hospital pharmacy also may be a dangerous age. It may be a time when we risk losing the zeal of a pioneering society, the oneness of a minority in common cause, the dedicated life that springs from meeting challenges and obstacles that must be thrust aside by those who move in new ways and directions.

Men like Harvey Whitney and Edward Spease knew where they stood and discerned in what direction they had to go. In their prime they were capable of inspiring thoughts, determined acts. The need for these qualities remains in a time of maturity, of institutions or of men. We are mindful that when circumstances change—as they always do—a new independence of thought and a courage to act will be needed. These are tools of leadership being laid down by a passing generation that must be taken up anew.

In the legacy left by men like Spease and Whitney we have a sound foundation; and if we build upon it, we pay them our greatest homage. Their spirit lives on in the SOCIETY; and in it we find an idealism that nurtures our finest impulses, and a principled purposefulness that strengthens our convictions. Something of their spirit and character and insight—which make us respect them and miss them—perhaps can be recaptured if we listened again to their own words:

GLENN SONNEDECKER, PH.D., is DIRECTOR, American Institute of the History of Pharmacy and Associate Professor of Pharmacy at the University of Wisconsin, Madison.

Presented at the Annual Meeting of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, Los Angeles, California, April 21, 1958.

Reprints available on request from author.

Edward Spease

The year is 1921. Edward Spease is speaking at New Orleans. It is two decades before the founding of the SOCIETY . . .

"Cleveland has a Hospital Council or federation of hospitals and a central purchasing bureau. One of the teachers in the School of Pharmacy acts as an advisor on drug purchases for the hospitals. We also propose to manufacture some things for the hospitals, and advise against purchases that do not meet laboratory standards. This laboratory work will be done at the School of Pharmacy. We further

expect to place senior students in hospitals for an internship. This will not only aid the hospitals but turn out better pharmacists." ("Address of the Chairman of the Section on Education and Legislation," *J. Am. Pharm. Assoc.*, *10*:979, 1921.)

Eleven years later, 1932:

"It has often seemed strange . . . that Schools of Pharmacy are not associated with hospitals, as are Medical Schools, and that until recent years a close affiliation has been entirely unknown between them in the United States.

"I know that pharmacy is a very important part of medical education and is so recognized by some hospitals in parts of the world . . . Medicine today emerges through the door of the hospital and unless the pharmacist is trained there side by side with the medical intern and nurse he is destined to become a mere distributor for the pharmaceutical house and not a pharmacist in fact.

"I do not think that either our practicing pharmacist or our schools have given this phase of pharmacy, which is real pharmacy, serious thought . . .

"Some months ago we signed a contract with our University Hospitals wherein the head of the Department of Pharmacy becomes Directing Pharmacist of the group. The three pharmacists in the pharmacy, selected by us, are appointed by the University on our teaching staff and in turn approved by the hospitals. Our senior students are then sent to the hospital for a course of instruction in hospital pharmacy and during that year are lectured to by some one in every division of the hospital activities . . . We have a pharmacy committee made up of four physicians, one from each hospital in the (Cleveland) group, the pharmacist and the directing pharmacist . . .

"The Pharmacy Committee was created at our request. You will see that in this way we have a voice in the selection of drugs, and that we have been able to eliminate useless proprietaries, and specialties is an established fact. We have also been able to bring under the pharmacy many services that have heretofore been performed by others. . . . . .

"The two main things we have gained have been respect for the pharmacist and the profession of pharmacy, and a knowledge for our students before they graduate as to what the physician expects of him and how he can perform this service. I know of no other way to inform the pharmacist properly about how to contact physicians in an understanding manner than to have him serve a supervised internship in the hospital beside the medical intern and nurse." (Edw. Spease, "Hospital Pharmacy and the School of Pharmacy," *J. Am. Pharm. Assoc.*, *21*:1217, 1932.)

It is 1928. Spease is speaking in Portland, Maine, as President of the American Association of Colleges of Pharmacy:

"Is the chief function of a school of pharmacy 'to teach students to practice pharmacy?' I do not agree at all. I believe this is the function of the pharmacist into whose employ the student finally comes. Our function is not to train or to teach to practice, but is to educate students and in addition, to render them capable of acquiring certain specific knowledge.

. . . . . .

"The student . . . must have developed in him a thirst for knowledge, scientific and otherwise, and he must learn how to study and to think. All this cannot be developed in a short period of time. . .

"In my own school I personally justify each course to the student . . . Sometimes I direct him into other channels when I find him better fitted for them. I spend my entire waking moments for pharmacy and for pharmacy students. Someone has said that to teach John Latin you must not only know Latin but you must know John. I talk everything from personal appearance to the value of scientific knowledge. I talk right living and why it is desirable, but I never say, "don't" . . . It works. If you want the fact that a student graduates from your school to mean something in itself, give him something of yourself, the best that is in you. Spend some time with him . . . Because you are in a professional school is no excuse for not making real men and women of your students . . .

"May I urge upon you to pay more attention to John, the man, and to his future than you have done in the past, educationally, morally and culturally." (Edw. Spease, "Address of the President of the American Association of Colleges of Pharmacy," *J. Am. Pharm. Assoc.*, *17*:898, 1928.)

Harvey A. K. Whitney

If we could hear H. A. K. Whitney once again, as he spoke at that memorable meeting of 1940, in Richmond,Virginia, it would sound like this. It is the Chairman of the Subsection on Hospital Pharmacy speaking. . .

"However the situation is disposed the fact remains there does exist agitation, and perhaps a real need for a unified organization of hospital pharmacists that will permit the recognition and expression of their many specialized professional practices. With this thought in mind, and only as an individual opinion, the following outline is offered for consideration." ("Chairman's Address," *J. Am. Pharm. Assoc., Sci. Ed.*, *30*:424, 1941.

Whitney then crystallized out of the ambitions and the discontent of members of the Subsection, several enduring ideas:

(1) establishment of a "National Association of Hospital Pharmacists"; abandonment of the Subsection on Hospital Pharmacy;

(2) affiliation of state or regional associations with the proposed National Association—still insisting upon the idea of prerequisite membership in the American Pharmaceutical Association;

(3) formation of local groups, affiliated with state groups;

(4) associate membership to strengthen groups at all levels;

(5) remission of part of the A.Ph.A. dues to help support the proposed National Association of Hospital Pharmacists.

It is now 1943. At the Columbus, Ohio, meeting of a new SOCIETY, the chair of its president ("Chairman") stands empty. A letter came from Dr. Sturgis of the University Hospital at Ann Arbor, explaining that Mr. Whitney was absent because of illness. Another letter from Whitney himself was read, explaining that he would not be able to participate actively in the affairs of the SOCIETY because of poor health. A certain Don E. Francke, who would succeed Whitney as head of the SOCIETY, went to the platform to read Whitney's address. The members—perhaps you—heard him say:

"Hospital Pharmacy stands at the beginning of a new era . . . If we can now only roughly sketch the general course to be followed; if we will have faith in ourselves, in each other, in the profession; then, and only then, shall we have made a beginning.

A modicum of careful planning at this time—not necessarily for the entire route, but with a single goal in sight and with the ultimate forever in our minds—will be an achievement of which we can be proud. We must, and shall, set our sights high and look for only the best in professional practices; and then we may, and will, expect that complete professional recognition accorded our brothers and sisters in the public health services.

. . . . . .

"We shall never be any stronger, more capable or more respected than any single part we may choose to include within our whole. Weak links, when discovered, either should have their defects repaired or should be removed in entirety."

. . . . . .

"Whatever course we choose to follow, let magnanimity and altruism be our guide, for if we should be labeled personal and selfish, much shall be denied to us and effort will be sterile. As a part and parcel of a plan, let there be recommended for your consideration the resolutions forthcoming from this our first annual meeting. Briefly these resolutions bear on certain desirable characteristics inherent in all professions; contact behavior with other members of our multifaceted profession; our place in the educational program; our duties to society; and placing of 'highway markers' on the map of our profession for the benefit of those who may follow along the trail we propose to blaze. If we attain some degree of success, then let us pray we shall have had enough idealism to fire the spirit and enthusiasm of those that do follow to accept our objectives and continue with the effort of smoothing the way. This should be our immediate task."

. . . . . .

". . . these are uncharted territories, and if even the best of our opinions at this time prove eventually to be wrong, we shall not be criticized for having made the effort.

. . . . . .

"Demonstrate your professional character and the rest will follow — prestige, respect, integrity, ability and living reward." (H.A.K. Whitney, "Address of the Chairman (A.S.H.P.)," *J. Am. Pharm. Assoc., Sci. Ed., 32*:457, 1943.)

These were men of the same generation, both Midwesterners. They were born eleven years and one state apart, Spease in Dresden, Ohio (1883); Whitney in Adrian, Michigan (1894). They both graduated in pharmacy at the great state universities of their native states. Neither man had a particularly impressive academic preparation for his career and role of leadership. But each, in his own way, had a spacious capacity for self-development, for helping others to self-realization and understanding, for creating professional goals and institutionalizing them. Spease and Whitney were first of all *pharmacists;* they were not merely in pharmacy but a part of it. Both were teachers, each in his own dedicated way. Together they led American pharmacy to a meaningful hospital internship.

Whitney established at the University of Michigan the first internship program of its kind in 1927; while Spease, a decade later, established the first full-fledged combination of internship and graduate study at the school he headed in Western Reserve University. They were "ahead of their time" perhaps, but in step with needs of a profession just maturing in the United States and buffeted by many antithetic pressures.

They persisted, and they must have reinforced each other's humane and professional attitudes. We know

they were friends. The picture of Spease you saw hanging at a place of honor in Whitney's office suggests that the older man was not without influence upon his younger colleague.

Whitney and Spease both left the positions in which they made their richest contribution while in their fifties. In that sense these parallel lives may have struck a note of unfulfillment, as well as of triumph.

They shared the same times; they worked together, counseled together, and shared certain goals; unhappily one almost could say that they died together, both leaving us within a short space of two months.

The specific achievements and biographic stepping stones, for which we honor them, need not be traced here in detail. Some of you shared part of those events as their contemporaries; all of you know their life histories from memorials in the AMERICAN JOURNAL OF HOSPITAL PHARMACY (*15:* 2 and 64, 1958) and elsewhere. And this is neither the occasion, nor yet the time, to assess finally in historical perspective their contributions. Yet, we can believe with confidence that they will find a lasting place in the history of pharmacy as important men. It may even be that within the frame of American hospital pharmacy, Harvey A. K. Whitney and Edward Spease were great men.
Let us stand in tribute:

May the achievements of Harvey A. K. Whitney and Edward Spease, whom we here honor, ever remind us that what we owe to the past obligates our best efforts to the future; and may their professional foresight and convictions foster in us an impulse toward the best that is in pharmacy and in man.

. . . resolutions

passed at 1958 Annual Meeting

Actions taken at the Annual Meeting of the American Society of Hospital Pharmacists are the result of recommendations of its officers, committees, and delegates from affiliated chapters, and are expressed in the form of resolutions.

The resolutions submitted by the various groups were considered by the Committee on Resolutions under the chairmanship of Mr. Grover C. Bowles, and including the following additional members: Mr. Robert Bogash, Miss Clara Henry and Mr. Clifton Latiolais. Also serving as assistants to the Committee were the following: Mr. Claude Busick, Dr. William Heller, and Mr. Robert Lantos.

The resolutions were presented to the membership at the Annual Meeting and voted upon. The resolutions, as finally approved, are presented here.

1

Amendment to By-Laws—Increase in Dues

WHEREAS as the SOCIETY grows and matures and becomes available and helpful to the individual practitioner as well as to the entire profession, so much more are the requirements in the way of energy, time, physical facilities and funds, now therefore be it

RESOLVED that Chapter V, Article 2 of the By-Laws of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS be amended to read as follows:

"Dues for active and associate members shall be ten dollars ($10.00) per year, payable in advance;" and be it further

RESOLVED that this increase in dues becomes effective January 1, 1959.

Resolution Number 1 was adopted and the membership will be informed regarding the change in dues rate. Also, the change will be noted in the By-Laws.

2

Amendment to By-Laws—Office of the Secretary

RESOLVED that Chapter II, Article 2 of the By-Laws of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS be amended to read as follows:

Article 2. Secretary. *The Secretary shall be the executive officer of the Society and shall work under the direction of the Executive Committee.* The Secretary shall keep minutes of the sessions of the SOCIETY and maintain a roster of its members. He shall notify individuals of their appointment to committees, notify members of the time and place of all meetings, and conduct the correspondence of the Society. He shall collect the dues of the members. The Secretary shall prepare and mail to all eligible voting members appropriate ballot forms for the annual voting of the Society. He shall be an ex-officio member of all standing committees. He shall assist, where possible, with the secretarial activities of all standing and special committees. He shall keep the President informed of all activities by forwarding to him copies of pertinent correspondence. He shall present a written report of his work to the Annual Meeting of the Society. The Secretary shall be Secretary of the House of Delegates. *He shall perform such other duties as may be assigned by the Executive Committee to implement the policies of the Society. He shall be empowered to use the title of Executive Secretary.*

Resolution Number 2 was adopted and the change will be noted in the By-Laws.

3

Constitution and By-Laws

WHEREAS the SOCIETY has grown to the point where changes should be made in the Constitution and By-Laws in order for the SOCIETY to function in a more democratic and effective manner, and which are vital to the future development and strengthening of the SOCIETY and of hospital pharmacy, and

WHEREAS the Committee on Constitution and By-Laws, after long and careful study wisely recommends:

1. that the present Executive Committee, which is predominantly an appointed body, be replaced by a Council which would be entirely an elected body;
2. that the House of Delegates be strengthened and be given more responsibility;
3. that a class of membership to be known as "Fellow of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS" be established;

now therefore be it

RESOLVED that the Society approve in principle these three major recommendations, and be it further

RESOLVED that the Committee on Constitution and By-Laws be instructed to incorporate these recommendations in the revision of the Constitution and By-Laws, and be it further

RESOLVED that the draft of the proposed Constitution and By-Laws be sent to all affiliated chapters of the Society for review.

Resolution Number 3 was adopted and has been referred to the Committee on Constitution and By-Laws.

4

Liaison with A.A.C.P.

WHEREAS it would be to the mutual interest of practitioners of hospital pharmacy and pharmaceutical education to confer on problems of mutual interest, now therefore be it

RESOLVED that the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS explore with the American Association of Colleges of Pharmacy the possibility of establishing a joint committee or some suitable type of liaison for the discussion of mutual problems.

Resolution Number 4 was adopted and will be explored during the coming year.

5

Internship Accreditation

WHEREAS the Division of Hospital Pharmacy has accepted the responsibility for implementing the accreditation of hospital pharmacy internships, and

WHEREAS the Division has been granted funds through the SOCIETY'S Committee on Research and Development to launch the internship accreditation program, and

WHEREAS internship training in hospital pharmacy is being jeopardized by a lack of progress in getting the accreditation program under way, now therefore be it

RESOLVED that the SOCIETY strongly recommends to the Division of Hospital Pharmacy that implementation of the accreditation program be undertaken during this calendar year, and be it further

RESOLVED that if the accreditation program is not undertaken within this calendar year, membership opinion predicates that the SOCIETY must consider other means of carrying out this important activity, and be it further

RESOLVED that the Secretary of the SOCIETY be requested to forward a copy of this resolution to the Chairman of the Policy Committee and to the Director of the Division of Hospital Pharmacy.

Resolution Number 5 was adopted and has been referred to the Chairman of the Policy Committee and the Director of the Division of Hospital Pharmacy.

6

Responsibility of the Pharmacist in Academic Centers

WHEREAS there is increasing interest in using the personnel and facilities of hospital pharmacies in undergraduate and graduate teaching programs of colleges of pharmacy, and

WHEREAS the Minimum Standard for Pharmacies in Hospitals states that the Chief Pharmacist shall be responsible to the Director of the hospital for the administrative and professional policies of the Pharmacy Department related to patient service, now therefore be it

RESOLVED that the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS encourage hospital pharmacists to accept faculty appointments and to participate in such programs, and be it further

RESOLVED that the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS believes that, in pharmacy departments in which academic education and patient service activities are carried out, the Chief Pharmacist and/or his staff should be responsible to the Dean for all educational activities for which course credit is given by the College of Pharmacy, and to an administrative officer of the hospital for all service functions of the pharmacy department.

Resolution Number 6 was adopted and is being called to the attention of the membership.

7

Pharmacists in Government Service

WHEREAS the pharmacists in government service have not been accorded proper recognition and consideration of their professional education and training, be it

RESOLVED that the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS go on record as supporting H.R. 6801 which will provide star rank for pharmacists in the government service as recommended by the combined National Committee on Status of Pharmacists in Government Service.

Resolution Number 7 was adopted and has been referred to the author of the bill and to the Chairman of the Committee on the Status of Pharmacists in Government Service.

8

Minimum Standards

WHEREAS revision of the Minimum Standard for Pharmacies in Hospitals is a vital project requiring the cooperation of all hospital pharmacists, and

WHEREAS proper coordination of efforts is essential for the development and completion of such a project, now therefore be it

RESOLVED that the long range plan for revising the present Minimum Standard for Pharmacies in Hospitals, as submitted by the Committee on Minimum Standards, be approved, and be it further

RESOLVED that the newly appointed Committee on Minimum Standards follow the general outline of this long-range plan, and be it further

RESOLVED that the affiliated chapters be encouraged to cooperate in this important project with the assistance of the Committees on Special Projects and Minimum Standards.

Resolution Number 8 was adopted and has been referred to the Chairmen of the Committees on Special Projects and Minimum Standards. It is also being called to the attention of the affiliated chapters through the JOURNAL.

9

Membership and Recruitment

WHEREAS it is essential for the life and well being of any professional society that there be an active and continuous interest in the recruitment of members, especially those practitioners new to the specialty, and

WHEREAS the 1957-58 Membership and Organization Committee has developed a method for an annual national and local membership drive, now therefore be it

RESOLVED that the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS furnish to each chapter annually, a supply of recruitment brochures, and be it further

RESOLVED that with the transmittal of such brochures a copy of the "New Jersey Membership Plan" as modified by the report of the Committee on Membership and Organization be included with a letter from the Secretary, encouraging the adoption of this technique at the Chapter level, and be it further

RESOLVED that periodically, but at least once every three years, a national recruitment mailing to hospital administrators be undertaken, including with such mailing, an appropriate issue of the AMERICAN JOURNAL OF HOSPITAL PHARMACY, or a study report of special interest to hospital administrators.

Resolution Number 9 was adopted and will be reviewed by the Secretary with the Committee on Membership and Organization and the Executive Committee.

10

Safety Program in Poison Control

WHEREAS better laws for the control of poisonous items sold from outlets other than pharmacists are necessary, and

WHEREAS better laws for the labeling of hazardous substances are imperative, now therefore be it

RESOLVED that the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS offer its assistance and cooperation to the Committee on Toxicology of the American Medical Association in furthering programs designed to promote safety in the control of poisonous and hazardous substances, and be it further

RESOLVED that if assistance is requested by the American Medical Association, the Committee on Laws, Regulations and Legislation and the Committee on Safety Practices and Procedures work through the Secretary of the SOCIETY in these activities

Resolution Number 10 was adopted and has been referred to the Secretary of the Committee on Toxicology of the American Medical Association.

11

Revisions of the A.H.F. Chapter on Poisons

WHEREAS the Committee on Economic and Household Poisons, by virtue of the activities in which it is involved, can be of valuable assistance in the preparation of the chapter on "Poisons and Their Antidotes" of the American Hospital Formulary Service, now therefore be it

RESOLVED that the Committee on Economic and Household Poisons be requested to cooperate with and assume certain responsibilities in future revisions of this section of the Formulary as may be delegated by the Director of the American Hospital Formulary Service.

Resolution Number 11 was adopted and has been referred to the Committee on Economic and Household Poisons.

12

Safety Practices and Procedures

WHEREAS the Joint Committee of the ASHP and the American Hospital Association has recognized the need for safety practices and procedures covering the storage, control, dispensing, and administration of drugs in hospitals, nursing homes, and homes for the aged, and

WHEREAS it has now been emphasized by the special Committee on Safety Practices and Procedures that this is a most serious and important problem involving patient and employee safety, now therefore be it

RESOLVED that

1. The SOCIETY pursue the feasibility of formalizing liaison with the National League for Nursing, as suggested by the Joint Committee, for the purpose of formulating proper safety guides for the handling of medications in hospitals,
2. The SOCIETY endorse the labeling suggestions which the Committee on Safety Practices and Procedures has made to the manufacturers and to the Federal and State Food, Drug and Cosmetic authorities,
3. Because of the interest shown in these safety studies by the Director of Revision of the U.S.P., he be informed of the final actions of this program as such actions relate to the labeling of drugs and chemicals,

4. The official ASHP delegate to the Congress of the International Pharmaceutical Federation in Brussels to participate in the Section on Hospital Pharmacy by introducing, if possible, a copy of this year's Report of the Committee on Safety Practices and Procedures and to report to this Committee new ideas gained from the discussion at the conference.
5. The accident survey initiated by the Committee on Safety Practices and Procedures be continued, and
6. Affiliated Chapters of the Society be urged to implement local programs on safety practices and procedures as outlined in this year's report of the Committee on Safety Practices and Procedures.

Resolution Number 12 was referred to the Executive Committee for study.

13

Investigational Drugs

Whereas the Joint Committtee of the ASHP and the American Hospital Association, in an effort to further increase patient safety, has developed a Statement of Principles Involved in the Use of Investigational Drugs in Hospitals, now therefore be it

Resolved that the American Society of Hospital Pharmacists go on record to approve this statement of principles on the use of investigational drugs in hospitals.

Resolution Number 13 was adopted and has been referred to the Secretary of the Joint Committee of the ASHP and A.H.A.

14

Compendium of Bulk Compounding Formulas

Whereas, the growing need for a single reference similar to the Pharmaceutical Recipe Book of the American Pharmaceutical Association to supplement the American Hospital Formulary Service has long been recognized by leaders of the Society, now therefore be it

Resolved that the President of the Society be requested to appoint a special committee to study the feasibility and advisability of the Society publishing a compendium of bulk compounding formulas.

Resolution Number 14 was adopted and has been referred to the President of the Society.

15

Seminars on Hospital Pharmacy

Whereas many of the Affiliated Chapters of the Society have been active in promoting seminars in hospital pharmacy which contribute immeasurably toward continuing education in the field, now therefore be it

Resolved that the American Society of Hospital Pharmacists encourage the continuation of this type of meeting in the state and local chapters, and be it further

Resolved that the American Society of Hospital Pharmacists express its sincere thanks and appreciation to Pfizer Laboratories for its interest and support of the Seminars conducted in cooperation with the Affiliated Chapters.

Resolution Number 15 was adopted and has been referred to Pfizer Laboratories. The resolution is also being called to the attention of the affiliated chapters through the Journal.

16

Time of Annual Meeting

Whereas the change in time of the Convention of the American Pharmaceutical Association experienced these last few years conflicts with the schedules and interests of many hospital pharmacists, now therefore be it

Resolved that the American Society of Hospital Pharmacists request the American Pharmaceutical Association to study the possibility of holding the Annual Convention during the summer.

Resolution Number 16 was adopted and has been referred to the Secretary of the American Pharmaceutical Association.

17

Bill H.R. 765

Whereas Bill H.R. 765 is designed to foster and encourage higher education by permitting parents or sponsors of students in private colleges and universities to Federal Income Tax credit of thirty percent (30%) up to a maximum of $450.00, and

Whereas enactment of this Bill into law would be of considerable benefit to higher education in this nation generally and in particular to our non-state supported schools and colleges of pharmacy, be it

Resolved that the American Society of Hospital Pharmacists endorse this measure, and be it further

Resolved that a copy of this resolution be forwarded within the next 15 days to the Chairman of the House Ways and Means Committee in Washington, which committee is currently studying this Bill.

Resolution Number 17 was adopted and has been referred to the Chairman of the House Ways and Means Committee.

18

Appreciation to Pope Pius XII

Whereas His Holiness Pope Pius XII has graciously bestowed upon the members of the American Society of Hospital Pharmacists his personal Blessing for their professional activities, and

Whereas recognition of the members of the Society in this significant manner was made possible through the Sisters, and

Whereas the symbolic presentation of this Blessing was made by Sister Mary Berenice at this Annual Meeting, be it

Resolved that this Society is most appreciative of this high honor, and be it further

Resolved that a copy of this resolution be sent to His Holiness Pope Pius XII, and a copy also transmitted to Sister Mary Berenice.

Resolution Number 18 was adopted and a letter of appreciation has been transmitted to His Holiness Pope Pius XII.

19

Appreciation

Resolved that the American Society of Hospital Pharmacists express its sincere appreciation to:

The American Pharmaceutical Association, and especially to the Executive Secretary, Dr. Robert P. Fischelis, for the valuable assistance given to hospital pharmacy and to the Society during the past year.

The American Hospital Association, and in particular to Dr. Edwin L. Crosby, its Director, Mr. Tol Terrell, its President, and also to its Council on Professional Practice for their effective cooperation in furthering better hospital pharmacy practice.

The Catholic Hospital Association, and in particular to Mr. M. R. Kneifl, its Executive Secretary and the Committee on Pharmacy Practice, for the activities of the Association in promoting better hospital pharmacy practice.

Resolution Number 19 was adopted and has been referred to the proper individuals.

20

Appreciation to Committees and Individuals Responsible for Annual Meeting

Resolved that the American Society of Hospital Pharmacists express its thanks and appreciation to all the thoughtful people and organizations who extended to the Society's members and guests the excellent program arrangements, the many fine services, accommodations, and entertainment features of this Fifteenth Annual Meeting held in Los Angeles.

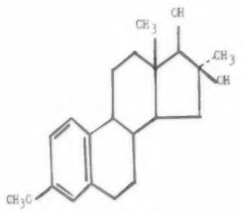
Resolution Number 20 was adopted and letters of appreciation have been sent to the individuals and Committees named.

Therapeutic Trends

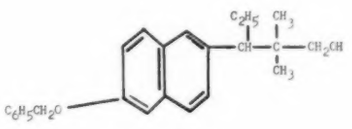
edited by **PAUL PARKER**

Use Of SC-4289 and SC-6924 in Atherosclerosis

Preliminary investigation of the effects of SC-4289 and SC-6924 (see structural formulas) in patients with coronary atherosclerosis was reported in *Amer. J. Med. Sci. 235*:50 (Jan.) 1958. The premise that the young female pattern of serum lipoprotein distribution is desirable was tentatively accepted, and efforts were made to attain this pattern without undue



SC-6924



SC-4289

feminization. These effects were accomplished in 65% of the patients treated with SC-6924, although 15% showed the opposite effect. This result was comparable to the investigator's experience with conventional estrogens, but there were indications that prohibitive feminization occurred in far fewer cases than with ordinary estrogens. Although there was some suggestion of electrocardiographic, and especially ballistocardiographic, improvements as compared with untreated patients, other evidences of objective improvement were not definitely established. SC-4289 did not show significant promise for use in the metabolic approach to the treatment of atherosclerosis. The investigators emphasized that this form of treatment is experimental and should not be undertaken indiscriminately.

The drugs were supplied by the G. D. Searle Company.

I.C.I.-13959—A New Antibiotic

A new antibiotic, I.C.I.-13959, produced by a strain of *Paecilomyces,* was found to be unusually active against *Trypanosoma congolense* in mice. The investigators at the University Chemical Laboratory in Cambridge, England, separated several neutral amino acids from the antibiotic by hydrolysis, including α-aminoisobutyric acid, β-hydroxyleucine, and μ-methylproline. Determination of the structure of other basic substances produced by hydrolysis and the structure of the antibiotic itself will be published later. The material was furnished by the Pharmaceuticals Division of Imperial Chemical Industries, Ltd. and the report was published in *Nature 181*:48 (Jan. 4) 1958.

Flavofungin

A new antibiotic which has a crystalline structure and is obtained from a species of *Streptomyces* has marked antifungal properties. The antibiotic has no influence upon growth of *Streptomycetes* and common bacteria. The initial work was conducted in the Antibiotic Research Institute of the Hungarian Academy of Sciences and reprinted in *Nature 181*:908 (Mar. 29) 1958.

5-Bromosalicylhydroxamic Acid For Tuberculosis

Preliminary studies to determine the tuberculostatic activity of 5-bromosalicylhydroxamic acid by *in vivo* studies with the mouse corneal method are reported in *Lancet 7023*:746 (Apr. 5) 1958. The drug was found to have some retarding effect on the development of lesions in the order of that produced by aminosalicylic acid. Since it is desirable to find a more palatable substitute for PAS, additional studies are indicated.

Chloroquine And Hydroxychloroquine In Cardiac Arrhythmias

Seventy-three arrhythmias occurring in 64 patients were treated with chloroquine and hydroxychloroquine, 50 of the arrhythmias responding favorably with restoration of sinus rhythm. Thirty-eight of 55 patients responded favorably to chloroquine, and 12 of 18 to hydroxychloroquine. Although chloroquine was used in a larger number of patients than hydroxychloroquine, there appeared to be no difference in the therapeutic effect of the two agents.

Most of the patients were treated by the oral route with an initial dosage of 1 Gm. per day in divided doses which was increased by 0.25 Gm. every third day until gastrointestinal side effects necessitated cessation. When necessary, the medications were administered intramuscularly using a dosage of 120 mg. every 30 minutes unti the desired effect was reached. Then the same amount was continued every 4 to 6 hours.

Side effects were limited as compared with the use of quinidine. Hydroxychloroquine was some-

what better tolerated than chloroquine with regard to gastrointestinal side effects.

Chloroquine is available as Aralen and hydroxychloroquine as Plaquenil from Winthrop Laboratories. The studies were reported in the *New Engl. J. Med.* *258*:798 (Apr. 17) 1958.

Thiocarbanilide (SU 1906), Thiazoline (SU 3068) And Thiazolidinone (SU 3912).

The chemotherapeutic activity of three new classes of antituberculous compounds, which have recently been synthesized in the laboratories of Ciba Pharmaceutical Products, Inc., was tested in animal experiments using several strains of chromogenic mycobacteria. Many chromogenic strains of mycobacterium are naturally resistant to certain substances which are normally bacteriostatic or bactericidal to *N. tuberculosis* and to saprophytic mycobacteria. Although these chromogenic mycobacteria are present only in a small percentage of the overall incidence of tuberculosis, their pronounced susceptibility to the thiocarbanilides (SU 1906), and in particular to the thiazole derivative SU 3068, may provide a new and more effective approach to certain cases of atypical tuberculous infections. The studies were reported in *Am. Rev. Tuber. Pulmonary Diseases* *77*:694 (Apr.) 1958.

Aminoethylisothiuronium

Scientists of the National Cancer Institute have studied a chemical that protects mice against the toxic effects of nitrogen mustard, an anticancer drug used in the treatment of Hodgkin's disease.

Tumor-bearing mice pretreated with the chemical, aminoethylisothiuronium bromide hydrobromide (AET), were completely protected against a dose of nitrogen mustard that would ordinarily kill 50 percent of the animals. In no case was the anticancer effect of nitrogen mustard suppressed by AET.

These findings were reported by Drs. Margaret G. Kelly, David P. Rall, and Charles G. Zubrod, all of the General Medicine Branch, and Dr. Roger W. O'Gara, Laboratory of Pathology, National Cancer Institute, Public Health Service, Bethesda, Maryland. Their presentation was read to the meeting of the American Association for Cancer Research, in Philadelphia, Pa., on April 13.

The investigation stemmed from reports from the Oak Ridge National Laboratory of the Atomic Energy Commission that AET was effective in protecting mice and monkeys against the lethal effects of radiation. These observations suggested the possibility that AET might protect against the toxic effects of alkylating agents, such as nitrogen mustard. This is a "radiomimetic" drug, producing in tissues effects similar to these produced by radiation.

The tests were made on mice that had a variety of transplanted tumors, including leukemia, lymphoma, sarcoma, and lymphosarcoma. Injection of AET alone produced no demonstrable effect on any of the tumors, but pretreatment with AET permitted the use of higher doses of nitrogen mustard.

The mean survival time of mice bearing implants of leukemia (L1210) and sarcoma (reticulum-cell sarcoma No. 6867) was always longer in animals pretreated with AET than in mice given high dose levels of nitrogen mustard only, and was increased 20 to 50 percent over that of untreated controls.

In mice bearing subcutaneous implants of either of these two tumors, nitrogen mustard delayed infiltration of the liver with tumor cells. This action of the drug was also not inhibited by pretreatment with AET.

Histopathologic studies on mice pretreated with AET indicated that it decreased but did not entirely prevent the toxic effects of nitrogen mustard in bone marrow and intestine of normal and tumor-bearing mice.

AET showed a weak protective effect against the toxicity of thio-TEPA, but none against other "radiomimetic" drugs, such as Myleran, colchicine, and trimethyl colchicinic acid.

Narcotics

The British Pharmacopoeia Commission, in a supplement dated January, 1958 listed approved names for 12 synthetic narcotics which are under international control and unavailable for therapeutic use. The approved names listed below, opposite the chemical or other names, may be useful for reference purposes.

BRITISH PHARMACOPOEIA COMMISSION

Approved Name	Chemical or Other Name
Alphacetylmethadol	α 3-Acetoxy-6-dimethylamino-4: 4-diphenylheptane *O*-Acetate of α 6-dimethylamino-4: 4-diphenylheptan-3-ol
Alphamethadol	α-6-Dimethylamino-4: 4-diphenylheptan-3-ol
Betacetylmethadol	β-3-Acetoxy-6-dimethylamino-4: 4-diphenylheptane *O*-Acetate of β-6-diethylamino-4: 4-diphenylheptan-3-ol
Betamethadol	β-6-Dimethylamino-4:4-diphenylheptan-3-ol
Desomorphine	Dihydrodeoxymorphine
Dimepheptanol	6-Dimethylamino-4:4-diphenylheptan-3-ol "Methadol"
Etoxeridine	Ethyl 1-[2-(2-hydroxyethoxy)ethyl]-4-phenylpiperidine-4-carboxylate
Methyldesorphine	6-Methyl-Δ-deoxymorphine
Metopon	Dihydromethylmorphinone (Metopon Hydrochloride available in the United States from Parke-Davis & Co.)
Myrophine	Myristyl ester of benzylmorphine
Oxymorphone	Dihydrohydroxymorphinone
Trimerperidine	1: 2: 5-Trimethyl-4-phenyl-4-propionyloxypiperidine

Timely Drugs

Achromycin Ophthalmic Oil

GENERIC NAME: Tetracycline hydrochloride.
INDICATIONS: Antibiotic therapy for the eye; for prophylaxis following removal of foreign bodies and treatment of minor eye injuries.
DOSAGE: One or two drops in affected eye.
PREPARATIONS: Suspension containing 10 mg. tetracycline hydrochloride in sesame oil.
PACKAGING: Plastic squeeze dropper bottles of 4 ml.
SUPPLIER: Lederle Laboratories.

Alphosyl

COMPOSITION: Crude coal tar extract and allantoin.
INDICATIONS: Topical therapy for psoriasis; reduces underlying inflammation, removes scales, and stimulates healing.
PREPARATIONS: Greaseless, non-staining lotion containing 5 percent special crude coal tar extract and 2 percent allantoin.
PACKAGING: Bottles of 8 ounces.
SUPPLIER: Reed & Carnrick.

Chel-Iron

CHEMICAL NAME: Iron choline citrate.
INDICATIONS: Iron deficiency anemias.
DOSAGE: Chel-Iron tablets, 1 or 2 tablets 3 times a day after meals for adults and 1 tablet 3 times a day after meals for children; Chel-Iron Plus tablets, 1 tablet 3 times a day; Chel-Iron Pediatric Drops, 0.5 ml. daily for prophylaxis.
PREPARATIONS: Tablets Chel-Iron containing 0.33 Gm. iron choline citrate complex; tablets Chel-Iron Plus containing 0.2 Gm. iron choline citrate, antianemic and B-complex vitamins; Chel-Iron Pediatric Drops containing 0.133 Gm. iron choline citrate complex per ml.
PACKAGING: Chel-Iron, bottles of 100 tablets; Chel-Iron Plus, bottles of 100 tablets; Chel-Iron Pediatric Drops, bottles of 30 ml. with graduated dropper.
SUPPLIER: Kinney & Co., Inc.

Dulcolax

CHEMICAL NAME: bis(p-Acetoxyphenyl)-2-pyridylmethane.
INDICATIONS: "Contact" laxative which does not depend on systemic absorption but acts directly on colonic mucosa; produces no systemic effects and is virtually insoluble in intestinal juices.
DOSAGE: Usually, 10 mg. orally at bedtime; rectally, one suppository at time action is desired.
PREPARATIONS: Suppositories of 10 mg. and enteric coated tablets of 5 mg.
PACKAGING: Boxes of 6 and bottles of 100 tablets; boxes of 6 suppositories.
SUPPLIER: Geigy Pharmaceuticals.

Liquiprin

COMPOSITION: Salicylamide suspension.
INDICATIONS: Analgesic and antipyretic.
DOSAGE: 1½ gr. (½ dropper) for each year of age, not to exceed 5 gr. (2 droppers).
PREPARATIONS: Suspension containing 1 gr. salicylamide per ml.
PACKAGING: Bottles of 1-⅔ ounces with calibrated dropper.
SUPPLIER: Johnson & Johnson.

Meprospan

CHEMICAL NAME: Meprobamate.
INDICATIONS: Prolonged release form permitting evenly sustained relaxation of mind and skeletal muscle, often at half the usual dosage of meprobamate.
DOSAGE: 200 mg. dose, releasing the drug continuously for 10 to 12 hours.
PREPARATIONS: Capsules, 200 mg., in the form of coated pellets.
PACKAGING: Bottles of 30 capsules.
SUPPLIER: Wallace Laboratories.

Meticortelone Soluble

GENERIC NAME: Prednisolone, sodium hemisuccinate salt.
INDICATIONS: In shock unresponsive to antishock therapy; acute adrenal cortical insufficiency; acute allergic and asthmatic reactions; severe infections with overwhelming toxemia; bilateral adrenalectomy.
DOSAGE: Intravenously, individually determined.
PREPARATIONS: Injection prednisolone sodium hemisuccinate with phosphate buffers, supplied as dry, lyophilized sterile powder; 50 mg. in 5 ml. vial.
SUPPLIER: Schering Corp.

Nupercainal Lotion

GENERIC NAME: Dibucaine.
INDICATIONS: For rapid relief of sunburn.
SIDE EFFECTS AND CONTRAINDICATIONS: Not more than one-half bottle (40 ml.) should be applied to adults within 24 hours; in children, the maximal dosage is proportionately smaller.
PACKAGING: Plastic bottles of 8 ounces.
SUPPLIER: Ciba Pharmaceutical Products, Inc.

pHan

COMPOSITION: Aluminum hydroxide-glycine and magnesium oxide.
INDICATIONS: Antacid and adsorbent for disturbances of gastrointestinal tract associated with or due to hyperacidity.
DOSAGE: One or two tablets every 2 hours.
PREPARATIONS: Tablets containing 450 mg. aluminum hydroxide-glycine and 60 mg. magnesium oxide.
PACKAGING: Bottles of 100 tablets.
SUPPLIER: Sandoz Pharmaceuticals.

Probilagol Liquid

COMPOSITION: D-Glucitol and homatropine methylbromide.
INDICATIONS: Enables poorly functioning gallbladder to produce regular evacuation and normal flow of bile for proper digestion.
DOSAGE: One teaspoonful 3 times daily, approximately one-half hour before meals.
PREPARATIONS: Liquid compound containing in each 5 ml.: 4.5 Gm. D-Glucitol and 1 mg. homatropine methylbromide.
PACKAGING: Bottles of 6 and 12 ounces.
SUPPLIER: Purdue Frederick Co.

SELECTED PHARMACEUTICAL ABSTRACTS

and summaries of other articles interesting to hospital pharmacists

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edited by CLIFTON J. LATIOLAIS *and* LEO F. GODLEY

TABLETS, A NEW METHOD FOR DISINTEGRATION TIME OF

A New Method for the Disintegration Time of Compressed Tablets, Patel, R. P. and Dantwala, A. S., Indian J. Pharm. 20:65 (Mar.) 1958.

The efficacy of a tablet depends on the speed with which it disintegrates. Both the *British Pharmacopoeia* and the *United States Pharmacopeia* test the disintegration time of compressed tablets by raising and lowering a wire gauze basket containing the tablets several times per minute in a beaker of water maintained at 35-39°C. The tablet is considered to have disintegrated when substantially no residue remains on the screen.

These official methods have certain disadvantages in that (1) immersion is accomplished with the aid of an electric motor and a reduction gear, which may prove expensive for small scale manufacture of tablets, and (2) the correct end-point is not observed when tablets containing insoluble ingredients are tested since the immersion fluid becomes turbid as the tablets disintegrate.

A new method has been devised in which the tablets are kept stationary in the wire gauze basket through which water is allowed to flow continuously. The disintegration is noted as soon as all the granules pass out through the mesh of the wire gauze basket. This method compared well with those described in the *B.P.* and *U.S.P.* and has the advantages of requiring simple and inexpensive equipment and producing a clear end-point. It is interesting to note that distilled water and well water gave identical results.

ROBERT L. RAVIN

MULTIVITAMIN (liquid) PREPARATION, STABILITY OF

An Investigation of the Relative Stability of an Oral Liquid Vitamin Preparation, Delgado, T., Lofgren, F. and Burlage, H., Drug Standards 26:51 (Mar.-Apr.) 1958.

A number of factors are involved in altering the stability properties of vitamins. Where one factor, such as pH, may enhance the stability of one vitamin, that same factor may cause the instability of another vitamin. Ten different liquid multivitamin preparations were developed and prepared. Four of these were formulated with a solution vehicle of 20% water, 40% glycerin, and 40% propylene glycol; and a second series of four with a solution of 20% water and 80% propylene glycol. Some formulations contained the sequestering agent, disodium calcium ethylene-diaminetetraacetate, to stabilize the oxidative decomposition of ascorbic acid by metals; some contained thiamine mononitrate instead of thiamine hydrochloride since the mononitrate form was reported to be more stable than the hydrochloride; another was formulated with the antioxidant, ethyl-cafferate, to study the antioxidant effect on the stability of vitamin A. Each formulation was initially assayed for thiamine, riboflavin, ascorbic acid, pyridoxine, nicotinamide, and vitamin A and then assayed again after a storage period of thirty days at 47°C.

The experimental results indicated the following results: thiamine, whether in the form of the mononitrate or hydrochloride, and pyridoxine are more stable in formulations containing a minimum of water. The stability values for riboflavin ranged from 65 to 92% in all of the formulations. The sequestration phenomenom was effective in increasing the stability of ascorbic acid, which was further enhanced in those preparations containing both the sequestering agent and antioxidant. Relatively low stability was exhibited for nicotinamide, but highest stability values were shown in formulations containing the higher concentrations of water. The stability of vitamin A was increased by the antioxidant. Generally, it was concluded that formulations containing less amounts of water possessed higher stability values than formulations containing larger amounts of water.

NORMAN HO

MULTIVITAMIN (liquid) PREPARATION, STABILITY OF

A Further Stability Study of an Oral Multivitamin Liquid Preparation, Bachubhai, D. and Lofgren, F., Drug Standards 26:56 (Mar.-Apr.) 1958.

Seven different oral liquid multivitamin preparations were developed. Three types of vehicles were used: (1) sorbitol, 45% w/v, with the formulation adjusted to pH levels of 3.5, 4.0, and 4.5; (2) glycerin, 24% v/v, propylene glycol, 24% v/v, and sorbitol, 25% w/v; and (3) glycerin, 10% v/v, propylene glycol, 50% v/v, and sorbitol, 18.75% w/v. The pH for the latter two vehicles was 3.4. In all of the formulations, antioxidants and chelating agents were used. Each formulation was assayed initially for vitamin A, thiamine hydrochloride, riboflavin, ascorbic acid, nicotinamide, pyridoxine, folic acid, and vitamin B_{12}, and then stored in amber colored bottles at room temperature and at 37°C. The vitamins were assayed after an aging period of 30, 60, and 90 days. Thiamine hydrochloride and ascorbic acid were more stable in the formulations containing less amounts of water. Thiamine was more stable at a low pH. The variation of the pH between 3.5 to 4.5 had little effect on ascorbic acid; the stability of vitamin B_{12} increased as the pH became greater. Vitamin A, riboflavin, nicotinamide, and pyridoxine hydrochloride had high stability values in all of the formulations.

NORMAN HO

BARBITURATES, DECOMPOSITION IN AQUEOUS SOLUTIONS

Decomposition of Sodium Barbiturates in Aqueous Solutions at 37°C, Fretwurst, F., Arzneimittel-Forschung (Drug Research) 1:44 (Jan.) 1958.

Previous investigations of the authors have dealt with the reactions of 5,5-di-substituted barbiturates in the human organism following therapeutic doses. Subsequently, quantitative analysis was performed on the decomposition of 18 different sodium barbiturates left in aqueous solutions at 37°C. Hydrolytic cleavage of the barbiturate ring occurring under the above mentioned conditions produces different proportions of the corresponding malonuric acids, acetureides, acetamides, acetic acid, malonic acid diamides, and malonic acids. The amounts obtained vary according to the substituted group located at C_5 and at the nitrogen atom.

If the amount of alkali is equivalent, most barbiturates mainly yield acetureides and malonuric acids. Among the breakdown products of barbituric acid derivatives methylated at the nitrogen atom, considerable amounts of the corresponding malonic acid diamides are found. Excess of alkali favors the production of malonic acids and acetic acids. The stability of the barbituric acid ring was found to increase in the following order: isopropyl-allyl-, secondary butyl-allyl-, isopropyl-B-bromallyl-N-methyl-, secondary amyl-B-bromallyl-, cyclohexenylethyl-, isopropyl-B-bromallyl-, and secondary butyl-B-bromallyl- barbituric acid. The procedure of reaction of which a detailed description is provided, yielded an average of 98.5% (91.3 to 99.9%) of the theoretical yield, calculated from the amount of the initial reactant.

AUTHOR'S SUMMARY

RESORCINOL EYE DROPS, STABILITY OF

Studies on the Stability of Drugs. II. The Stability of Eye-Drops of Resorcinol, Morch, J. and Morch, K., Dansk Tidsskrift for Farmaci 32:73 (Mar.) 1958.

Eye drops of resorcinol, *Ph. Dan.* 1948, contain 1% of resorcinol and 0.6% of sodium chloride in sterile water; a heat treatment is not prescribed and the time of storage is limited to three months, since the resorcinol is easily oxidized under the development of a yellow or reddish colour. Of the possible autoxidation products

2,5-dihydroxyquinone and a humic acid ("acid salicylate brown") were compared spectrophotometrically (vixible region) with the oxidation products of the eye drops. No accordance was found and it was demonstrated by chromatography that at least four different compounds are formed by the oxidation.

The analysis of the eyedrops was carried out by the following procedure: 5 ml. were extracted four times with 25 ml. of ether. After evaporation the residue was dissolved in 20 ml. of a mixture containing 1 vol. of chloroform and 3 vols. of ethanol (61.5 w/w percent). The solution was sucked through a column of aluminum oxide packed by the addition of the same solvent and the column was washed with 40 ml. of the solvent after passage of the solution. The colourless solution was diluted to 750 ml. with ethanol (94 w/w percent), and 750 ml. of water was added before spectrophotometry (ultraviolet region) in a Beckman DU; the concentration of non-oxidized resorcinol in the eye-drops was calculated from the extinction at 274 mu. This procedure cannot be used for the estimation of strongly discoloured eye drops.

Eye drops prepared with four different samples of resorcinol were examined. Sample D did not comply with the limit test for metals in the *Ph. Dan.* Sample C was used for the following experiments. The addition of 0.05% of sodium pyrosulphite prevents discoloration even after autoclaving at 120°C for 20 minutes. To prevent the decrease of pH (a pH value of about 3 is, however, tolerable, cf.) sodium citrate was added as a buffer in a concentration which gave an isoosmotic solution in connection with the resorcinol and the pyrosulphite; the eye drops were stable for one year in small, rubber-capped bottles and for two months in cotton-wool stoppered pyrex flasks (used for the storage of the stock). The eye drops of the *Ph. Dan.* showed a more pronounced discoloration but a smaller loss since the pH value decreases on storage. The effect of pyrosulphite is only cosmetic, if the decrease of pH is prevented by the addition of a buffer.

Since traces of copper catalyze the oxidation of resorcinol, the addition of some chelating agents was investigated. Thiourea, normal oxyquinoline sulphate and disodium ethylenediaminetetraacetate all showed good results as stabilizers for eye drops containing traces of cupric ion (added as cupric sulphate). The amounts of cupric ion corresponded to the limits proposed by Schou for sterile water (2.10-6%) and for distilled water (2.10-5%), respectively. The optimal concentrations of the stabilizers were determined to be 0.01% of thiourea, 0.005% of normal oxyquinoline sulphate and 0.005% of disodium ethylenediaminetetraacetate. The effect of oxyquinoline sulphate is better at higher concentrations, but these give solutions which are yellow due to the colour of the stabilizer. The pH values of the eye drops are not changed by the stabilizers in the optimal concentrations. Table 7 shows the effect of the addition of the optimal concentration of the stabilizers to the official eye drops of resorcinol; disodium ethylenediaminetetraacetate gives less color, but oxyquinoline sulphate has the advantage of acting as a preservative against infection of the eye drops.

AUTHORS' SUMMARY

RESORCINOL EYE DROPS, STABILIZATION OF

Stabilization of Eye-Drops of Resorcinol, Laessoe, V., Dansk Tidsskrift for Farmaci 32:61 (Mar.) 1958.

The discolouration of eye drops of resorcinol is catalyzed by copper. The addition of 0.05% sodium pyrosulphite and the use of re-distilled water stabilize the solution which can withstand autoclaving. A bromometric titration of the autoclaved eye drops, to which were added sodium pyrosulphite and varying amounts of copper, gave no support for a possible connection between discolouration and the decrease in the content of resorcinol after storage for 100 days. The solution becomes acidic on autoclaving, about pH 3. This alteration in the pH did not give rise to any inconvenience—neither subjectively nor objectively—in 200 patients observed over a six months period, when the patients were examined.

AUTHOR'S SUMMARY

PARABENS, REDUCTION OF BACTERICIDAL ACTIVITY

Reduction of the Action of Parahydroxybenzoic Acid Esters Caused by 7-Hydroxyethyltheophylline, Meyer, G., Arzneimittel-Forschung (Drug Research) 8:196 (Apr.) 1958.

The bactericidal and preservative action of p-hydroxybenzoate esters may be reduced by hydroxyethyltheophylline. This appears to be due to the formation of complex compounds from hydroxyethyltheophylline and p-hydroxybenzoate esters.

AUTHOR'S SUMMARY

CONTRIBUTIONS TO THE TECHNOLOGY OF TABLETS

Some Problems in the Preparation of Material for Tablet Making, Mashkamov, S. M., Meditskinskaya Promyshlennost S.S.S.R. (U.S.S.R.) 12, 1:21 (Jan.) 1958.

In order to produce tablets of high quality from the medicinal substances used most often, it is possible to limit the choice of filling substances to starch, sugar and talc only. It is advisable to granulate primarily by sieving through a sieve with openings of 3 to 5 mm. diameter and, after drying, by sieving through a sieve with openings of 1.5 mm. diameter. The tablet pressing is then accomplished without the separation of small particles. It is necessary to determine the optimal humidity for each material to be tableted. Whenever this optimal humidity is taken into consideration, tablets with minimal quantity of filling substances (inclusive of talc) are obtained. The author recommends that all of these principles be incorporated into the Ninth Edition of the *Soviet Pharmacopoeia* which is in preparation.

HUBERT ZACEK

ANTIBIOTICS, INFLUENCE OF WETTING AGENTS ON ACTIVITY OF

The Influence of Wetting Agents on Antibiotics, Olberg, H., Arzneimittel-Forschung (Drug Research) 3:143 (Mar.) 1958.

Bacteriological tests (serial dilution tests with subcultures) were performed to investigate the influence of a non-ionic wetting agent, polyoxyethylized castor oil, on the activity of several antibiotics used in treatment. In most instances the wetting agent acted indifferently, in some activation was observed, still others showed inhibition. These effects were not subject to definite rules. Apparently some optimal concentration of wetting agents is decisive for their activity. If one of the wetting agents destined for inhalation, Fugin, was combined with antibiotics, significant increase of activity was found with the exception of two cases. The importance of the above mentioned results for practical treatment is discussed.

AUTHOR'S SUMMARY

SOME DETAILS OF THE MANUFACTURE OF SILICONIZED GLASS AMPULS

Increase of the Chemical Stability of Medicinal Glass, Bril, I. L. and Gumilevskaya, M. I., Meditsinskaya Promyshlennost S.S.S.R. (U.S.S.R.) 12, 2:48 (Feb.) 1958.

The purpose of this work was to investigate the effect of silicones on the chemical stability of glass ampuls when tested against water and, especially, to investigate the increase in pH of distilled and double distilled water caused by the release of alkaline substances from glass. The ampuls were processed as follows: washed with water; filled with silicone; emptied; repeated washing and drying. The ampuls were then filled with distilled water and placed in boiling water for two hours or for 30 minutes in an autoclave at 2 atmospheres. Thereafter, the pH of the water contained in the ampuls was determined.

Among the many results found by the authors, the following ones are most important: the coat-forming silicone is to be held in the ampul during 10 minutes minimally before emptying and drying. The latter operation is carried out at 200°C. for 75 to 120 minutes. The emulsion of 0.5% of silicone in water proved to be a better coat-forming liquid than the 0.25% and 0.5% solutions of the silicone in solvent-naphtha. The pH of distilled water adjusted in siliconized ampuls remained 90 days without changing, whereas in the ampuls without silicone treatment a slight increase of the pH took place.

HUBERT ZACEK

SYRINGE STERILIZATION BY INFRA-RED RADIATION

Sterilization of Syringes by Infra-Red Radiation, Darmady, E. M., Hughes, K.E.A., and Tuke, W., J. Clin. Path. 10:291 (Nov.) 1957.

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When infra-red is used as a heat source, changes in temperature sometimes occur due to variations either in voltage or in the elements themselves. Both the 2 ml. and 20 ml. syringes reached 180°C within 90 seconds of each other. The maximum heat variation, except for one type of syringe, was less than 14°C for the 2 ml. syringe and less than 10°C for the 20 ml. syringe. Multipoint thermocouples were used to determine syringe temperature throughout the apparatus and dried spore-bearing earth was used to determine sterility. The authors suggest that the syringes should be maintained at 180°C or more for 11 minutes to insure sterility.

The principal advantages of radiant heat sterilization are: (1) syringes may be sterilized fully assembled in presealed containers; (2) "heating up" time is less than in hot air ovens; (3) it is not possible to overload this type of apparatus, in contrast to ovens and autoclaves; and (4) temperature variation is considerably less than in hot air ovens.

FRANZ W. GEISZ

ASSAY OF ALKALOIDS

Determination of Alkaloids with Aluminum Oxide Columns: Total Alkaloids of Tincture of Quinine, Pfandl, K. and Klotz, J., Deutsche Apotheker Zeitung 98:27 (Jan. 16) 1958.

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OTMAR NETZER

VITAMIN F, CURRENT STATUS OF

The New Status of "Vitamin F," Pyke, M., Pharm. J. 126:274 (Apr. 12) 1958.

It is generally agreed that the deposition of cholesterol esters, a product of fat in the diet, is a significant factor in the etiology of atherosclerosis and coronary heart disease. It has been shown that those populations which have high amounts—up to 40% of total calories—of fat in their diet exhibit the highest incidence of these diseases.

Currently a controversy exists concerning the role certain unsaturated fatty acids (vitamin F) play in the lowering of the incidence of coronary heart disease. Certain investigators performing short term experiments with unsaturated fatty acids have shown that when included in the diet they will significantly lower the level of serum cholesterol. Others, on the other hand, maintain that decreasing the total amount of fat in the diet is essential for lowering serum cholesterol. They believe that, although the unsaturated fatty acids do depress serum cholesterol, their effect is minimized by the opposing effect of the saturated fats which accompany them in the diet. Further study will no doubt reveal the ultimate value of the unsaturated fatty acids in these diseases.

JOHN D. LUCASSE

TABLETS, MECHANICAL RESISTANCE OF

A Contribution to the Estimation of the Mechanical Resistance of Tablets, Fuchs, Z, Vojnosanitetski Pregled (Yugoslavia) 14:767 (Dec.) 1957.

The method described in this paper is based on measuring the depth to which a conical penetrator enters the tablet mass under certain loads. It has been found that a linear relationship exists between penetration and load, in the range of relatively lower loads. At higher loads the depth *vs.* load-curve first descends and later on rises, clearly showing a point of inflection. Further increase of the load breaks the tablet. The position of the point of inflection, which lies midway within a range of obvious changes of the tablet's structure, might be taken as a measure of mechanical strength. This could be defined as the proportion of the actual load and the surface of the basis of the penetrator entering the tablet. The hardness is likewise defined by the same proportion, but with loads belonging to the linear portion.

The method has been found to give fairly reproducible results. A great number of measurements have been made with several kinds of tablets, each tablet being tested on several points of its surface. The deviations of the mean values lie well between confidence levels of 95%. Thy also show approximately Gaussian distribution.

AUTHOR'S SUMMARY

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A Study of Structure of Complex Colloidal Magnesium Aluminium Silicate Known as Veegum, Tufegdzic, N., Apxnb (Archiv of Pharmacy) (Yugoslavia) 8:37 (Jan.) 1958.

Differential thermal analysis of Veegum was made and thermal reactions which occur by destruction of the crystal lattice of silicate minerals were compared. By analogy it was concluded that the basic structure in the examined material is the same as with the mineral montmorillonite which, according to Hofmann, Hendricks and Marshall, consists of two silicium tetrahedral layers between which there is an aluminum octahedral layer in which one part of the aluminum is replaced by magnesium and iron. By structure it is possible to explain a great number of colloidal properties of Veegum.

The differences which occur in the properties of Veegum and in those of various bentonites in which there is also present the mineral montmorillonite, are explained to arise owing to different exchangeable cations, various impurities and various possible isomorphous substitutions in the crystal lattice.

AUTHOR'S SUMMARY

LOCAL ANESTHETICS, TESTING DEGREE OF ACTIVITY

Studies on the Standardization of Local Anesthetics, Herr, F., Arzneimittel-Forschung (Drug Research) 3:137 (Mar.) 1958.

Comparable methods of investigation were used to test infiltration, conduction and surface anesthesia induced by procaine, cocaine, p-butylamino-benzoyldimethylaminoethanol (Tetracaine), 2-butylhydroxycinchonate-diethylene-diamide (Nupercaine), and a-diethylamino-2,6-dimethylacetanilide (Xylocaine). Infiltration and local anesthesia were tested in the rat's tail, surface anesthesia was investigated in the guinea pig's cornea. The degree of activity was expressed in EC_{50}. EC_{50} is the concentration of local anesthetic which causes complete anesthesia in 50% of the animals five minutes after application. The following criteria were taken for complete anesthesia: absence of the tail reflex in infiltration and conduction anesthesia, absence of corneal reflex in corneal anesthesia. The duration of action of local anesthesia was compared with equipotential concentrations, i.e. with the threefold EC_{50}. The c/i-indices were calculated with the aid of the EC_{50}. Results obtained indicated that cocaine may not be regarded as a surface (mucosal) anesthetic. The above mentioned methods are advocated as a standard procedure for the assay of local anesthetics.

AUTHOR'S SUMMARY

MEDICINAL COLORS, ATTITUDES TOWARD

Colour-Correctives for Medicinal Use. Preliminary Experiments. Testing of Danish Children 7-12 Years Old, Madsen, E., Dansk Tidsskr. Farm. 31:50 (Feb.) 1957.

A colour-corrective for medicinal use is a non-toxic colouring matter, used to color medicaments with the purpose of auto-suggesting the person who is to take—or not take—a certain medicament into a certain preconceived attitude of mind.

The problems concerning the use of colour-correctives in pharmacy have not previously been examined.

Solutions with the colours: colourless, red, orange, yellow, green, blue, violet, and black were prepared. The children tested were told to select the most attractive and the least attractive colour from these "medicines."

These experiments, comprising 1,959 Danish children, 7 to 12 years of age, show that children are attracted by red, blue, and violet fluids, but repelled by black and colourless fluids.

Minor differences appear in the likes and dislikes of boys and girls. It was also found that the attitude to certain colours varies with the age.

Attractive colours should be used to colour medicaments to which it is desirable that children should respond in a positive manner, *e.g.* vitamin preparations, nutriments, possibly antibiotics, and certain cough mixtures.

Children are unaffected by yellow, orange, and green colours. These colours may be used for differential colouring of not very dangerous medicaments.

Particularly poisonous and dangerous fluids should be black. The conception of reducing the abuse of medicines by colouring these might be worthy of consideration.

A number of CIBA and ICI colours which can be used for colouring are obtainable.

The results will probably also be of importance for the colour-scheme of labels on medicaments, for the consumer-goods industries (ice creams, soft drinks, sweets, etc.), and perhaps for school authorities when selecting colours for equipment, etc.

The experiments should be continued to cover other age-groups.

AUTHOR'S SUMMARY

OINTMENT BASES, CRITERIA FOR SELECTING

Comparative Study of Ointment Bases, Robinson, Raymond C. V., A. M. A. Arch. Dermatol. 72:54 (July) 1955.

The author discusses the pharmaceutical and biological properties of 17 official (U.S.P. and N.F.) and nonofficial ointment bases which are available to the physician. Factors to be considered in the proper selection of an ointment base are included in table form. These factors are given a rating from 1 to 4 ("4" being the highest index of desirability). The sensitizing qualities of the ointment bases are rated A to C ("C" being the most sensitizing). According to this table the "ideal ointment base" would have a rating of 32A.

OTMAR NETZER

TABLE 1. HOW TO SELECT AN OINTMENT BASE

BASE	CRITERIA FOR SELECTION: PHARMACEUTICAL				BIOLOGICAL					
	RANGE OF COMPATIBILITY	COSMETIC ACCEPTABILITY	CHEMICAL STABILITY	TEMPERATURE STABILITY	SPREADABILITY	RELEASE OF MEDICATION	PRIMARY IRRITATION	RANGE OF THERAPEUTIC APPLICATION	SENSITIZATION	RATING*
PETROLATUM AND SIMILAR BASES (OLEAGINOUS)										
Hydrogen. vegt. oils	2	2	4	2	4	2	4	2	A	22A
Lard	3	1	1	1	4	2	4	2	A	18A
Petrolatum	3	3	4	3	3	3	4	3	A	26A
Plastibase	3	2	4	4	4	4	4	3	A	28A
Ung. aq. rosae	2	4	3	3	4	2	4	2	A	24A
LANOLIN AND SIMILAR BASES (ABSORPTION)										
Aquaphor	4	2	4	2	4	3	4	3	A	26A
Hydrophilic pet. (USP)	4	2	4	2	4	3	4	3	A	26A
Hydrosorb	4	2	4	2	4	3	4	3	A	26A
Hydrous wool fat	3	3	3	3	3	3	3	3	C	24C
Plastibase, hydrophilic	4	2	4	4	4	4	4	3	A	29A
Polysorb	4	2	4	2	4	3	4	3	A	26A
Qualatum	4	2	4	2	4	3	4	3	A	26A
VANISHING CREAM & SIMILAR BASES (WATER-SOLUBLE)										
Almay emulsion base	3	4	3	3	3	4	4	3	B	27B
Hydrophilic Oint. (USP)	2	4	3	2	2	4	3	2	C	22C
Neo-Base	3	4	3	3	3	4	4	3	B	27B
Polyethylene glycol oint.	3	3	4	2	4	4	3	2	C	25C
Unibase	3	4	3	3	3	4	4	3	B	27B

* The column "Rating" not published by author.

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FRANZ W. GEISZ

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LOCAL ANESTHETICS, TESTING DEGREE OF ACTIVITY

Studies on the Standardization of Local Anesthetics, Herr, F., Arzneimittel-Forschung (Drug Research) 3:137 (Mar.) 1958.

Comparable methods of investigation were used to test infiltration, conduction and surface anesthesia induced by procaine, cocaine, p-butylamino-benzoyldimethylaminoethanol (Tetracaine), 2-butylhydroxycinchonate-diethylene-diamide (Nupercaine), and a-diethylamino-2,6-dimethylacetanilide (Xylocaine). Infiltration and local anesthesia were tested in the rat's tail, surface anesthesia was investigated in the guinea pig's cornea. The degree of activity was expressed in EC_{50}. EC_{50} is the concentration of local anesthetic which causes complete anesthesia in 50% of the animals five minutes after application. The following criteria were taken for complete anesthesia: absence of the tail reflex in infiltration and conduction anesthesia, absence of corneal reflex in corneal anesthesia. The duration of action of local anesthesia was compared with equipotential concentrations, i.e. with the threefold EC_{50}. The c/i-indices were calculated with the aid of the EC_{50}. Results obtained indicated that cocaine may not be regarded as a surface (mucosal) anesthetic. The above mentioned methods are advocated as a standard procedure for the assay of local anesthetics.

AUTHOR'S SUMMARY

MEDICINAL COLORS, ATTITUDES TOWARD

Colour-Correctives for Medicinal Use. Preliminary Experiments. Testing of Danish Children 7-12 Years Old, Madsen, E., Dansk Tidsskr. Farm. 31:50 (Feb.) 1957.

A colour-corrective for medicinal use is a non-toxic colouring matter, used to color medicaments with the purpose of auto-suggesting the person who is to take—or not take—a certain medicament into a certain preconceived attitude of mind.

The problems concerning the use of colour-correctives in pharmacy have not previously been examined.

Solutions with the colours: colourless, red, orange, yellow, green, blue, violet, and black were prepared. The children tested were told to select the most attractive and the least attractive colour from these "medicines."

These experiments, comprising 1,959 Danish children, 7 to 12 years of age, show that children are attracted by red, blue, and violet fluids, but repelled by black and colourless fluids.

Minor differences appear in the likes and dislikes of boys and girls. It was also found that the attitude to certain colours varies with the age.

Attractive colours should be used to colour medicaments to which it is desirable that children should respond in a positive manner, *e.g.* vitamin preparations, nutriments, possibly antibiotics, and certain cough mixtures.

Children are unaffected by yellow, orange, and green colours. These colours may be used for differential colouring of not very dangerous medicaments.

Particularly poisonous and dangerous fluids should be black. The conception of reducing the abuse of medicines by colouring these might be worthy of consideration.

A number of CIBA and ICI colours which can be used for colouring are obtainable.

The results will probably also be of importance for the colour-scheme of labels on medicaments, for the consumer-goods industries (ice creams, soft drinks, sweets, etc.), and perhaps for school authorities when selecting colours for equipment, etc.

The experiments should be continued to cover other age-groups.

AUTHOR'S SUMMARY

OINTMENT BASES, CRITERIA FOR SELECTING

Comparative Study of Ointment Bases, Robinson, Raymond C. V., A. M. A. Arch. Dermatol. 72:54 (July) 1955.

The author discusses the pharmaceutical and biological properties of 17 official (U.S.P. and N.F.) and nonofficial ointment bases which are available to the physician. Factors to be considered in the proper selection of an ointment base are included in table form. These factors are given a rating from 1 to 4 ("4" being the highest index of desirability). The sensitizing qualities of the ointment bases are rated A to C ("C" being the most sensitizing). According to this table the "ideal ointment base" would have a rating of 32A.

OTMAR NETZER

TABLE 1. HOW TO SELECT AN OINTMENT BASE

	CRITERIA FOR SELECTION									
	PHARMACEUTICAL				BIOLOGICAL					
BASE	RANGE OF COMPATIBILITY	COSMETIC ACCEPTABILITY	CHEMICAL STABILITY	TEMPERATURE STABILITY	SPREADABILITY	RELEASE OF MEDICATION	PRIMARY IRRITATION	RANGE OF THERAPEUTIC APPLICATION	SENSITIZATION	RATING*
PETROLATUM AND SIMILAR BASES (OLEAGINOUS)										
Hydrogen. vegt. oils	2	2	4	2	4	2	4	2	A	22A
Lard	3	1	1	1	4	2	4	2	A	18A
Petrolatum	3	3	4	3	3	3	4	3	A	26A
Plastibase	3	2	4	4	4	4	4	3	A	28A
Ung. aq. rosae	2	4	3	3	4	2	4	2	A	24A
LANOLIN AND SIMILAR BASES (ABSORPTION)										
Aquaphor	4	2	4	2	4	3	4	3	A	26A
Hydrophilic pet. (USP)	4	2	4	2	4	3	4	3	A	26A
Hydrosorb	4	2	4	2	4	3	4	3	A	26A
Hydrous wool fat	3	3	3	3	3	3	3	3	C	24C
Plastibase, hydrophilic	4	2	4	4	4	4	4	3	A	29A
Polysorb	4	2	4	2	4	3	4	3	A	26A
Qualatum	4	2	4	2	4	3	4	3	A	26A
VANISHING CREAM & SIMILAR BASES (WATER-SOLUBLE)										
Almay emulsion base	3	4	3	3	3	4	4	3	B	27B
Hydrophilic Oint. (USP)	2	4	3	2	2	4	3	2	C	22C
Neo-Base	3	4	3	3	3	4	4	3	B	27B
Polyethylene glycol oint.	3	3	4	2	4	4	3	2	C	25C
Unibase	3	4	3	3	3	4	4	3	B	27B

* The column "Rating" not published by author.

SURGICAL GLOVE DUSTING POWDER, STERILIZATION OF

Sterilization of Colloidal Oatmeal for Use as a Dusting Powder in Surgical Gloves, White, A. M. and Jeffrey, L. P., Am. J. Pharm. 130:82 (Mar.) 1958.

Methods of sterilizing colloidal oatmeal for use as a dusting powder in surgical gloves were investigated. Colloidal oatmeal, a concentrate of the gum fraction of the oat grain (approximately 20% protein), has no skin sensitizing or irritating properties and maintains a pH comparable to that of normal skin. The powder was placed in small polyethylene packets and larger paper bags and subjected to sterilization in the autoclave (121°C, 15 pounds pressure, and time range of 7 to 15 minutes) and in the hot air oven (160°C, and time range of 7 to 15 minutes). Bacteriological examination was carried out on contaminated (with *Bacillus subtilis*) and uncontaminated samples. Sterilization by autoclaving after 15 minutes exposure had the following results: (1) clumping and hardening of the powder, (2) no evidence of the polyethylene packets splitting open, and (3) satisfactory sterilization. However, the results of sterilization in the hot air oven were unsatisfactory because of: (1) scorching of the packages, and (2) color change of the powder from white to brown.

A further investigation of sterilization by autoclaving at 121°C for 15 minutes was undertaken using sterilizing packs. Of the four procedures tested, the best results were obtained by placing small polyethylene packets of the powder in surgical rubber gloves and folding. Before proceeding to dust the gloves prior to use, it was recommended that the powder be pressed several times with the fingers.

NORMAN HO

IV FAT EMULSION

Fat Emulsion for Intravenous Use, Cole, Warren H., J. Am. Med. Assoc. 166:1042 (Mar. 1) 1958.

This editorial mentions the salient points brought out at a recent symposium with particular reference to the preparation, utilization, and reactions of a newly developed intravenous fat emulsion.

Up to the present, fat emulsion formulations have caused reactions too severe to be allowed in clinical practice. The new formulation, however, apparently causes only mild reactions. This emulsion is made from a highly refined cottonseed oil, an emulsifying agent (soya phosphatide), a coemulsifying agent (polyoxyethylenoxypropylene polymer), and dextrose in water for injection. The fat globules vary from 0.5 to 1 micron in diameter with not over 0.02% of the particles larger than 1.5 microns in diameter. The preparation is stable for one year under refrigeration and a 500 ml. bottle (15% fat) provides 800 calories.

The various investigators participating in the symposium were in general agreement that (1) the injected fat was nearly completely utilized and the emulsion had a prominent protein-sparing effect, (2) subjective complaints after injection were mild and insignificant, (3) up to 1,000 ml. might safely be given per day, (4) there appeared to be no practical contraindications, except that if a reaction were sustained the injection should be stopped, (5) the emulsion should be given cautiously if there is slow clearance of the fat in the serum, and (6) the emulsion in its present form was considered to be safe for clinical use.

This intravenous fat emulsion is available at present only on an investigational basis (Upjohn).

CLIFTON J. LATIOLAIS

ORGANIC BROMIDES IN BIOLOGICAL FLUIDS, DETECTION OF

Rapid Detection of Organic Bromides in Biological Fluids, Nakamura, G. A., Armed Forces Med. J. 9:498 (Apr.) 1958.

A rapid, simple procedure for detection of organic bromides in biological fluids is discussed. Feigl's technic for the spot test of inorganic bromine has been adapted for organic bromide identification. The method depends on the formation of red eosin from yellow fluorescein when the latter is exposed to bromine vapor. The procedure is as follows: Add 10 to 50 ml. of the fluid specimen to a separatory funnel and then add five times the volume of chloroform. Adjust pH to 5 or 6 with 10% hydrochloric acid. Shake the funnel for five minutes and extract the chloroform through a celite filter and evaporate until almost dry. Dissolve the residue in ethyl ether and transfer to a pyrex tube. Gently heat the tube in a water bath to dry the ether extract. Add three times the amount of solid sodium carbonate and heat the mixture in a hot flame until there is complete decomposition. Plunge the tube tip into 5 ml. of water and stir the mixture. Cool and acidify with an excess of glacial acetic acid. Transfer to a 50 ml. Erlenmeyer flask. Add 10 mg. of lead peroxide and then close the mouth of the flask with a sheet of filter paper impregnated with freshly prepared 0.1% fluorecein in alcohol and bind with a rubber band. Heat the flask gently on a hot plate for five minutes.

A circular red fleck is formed on the yellow test paper, the intensity depending on the amount of bromine present. The same method, outlined above, is used in preparing a reagent blank using a small amount of potassium or sodium bromide as a standard. The speed with which the red fleck appears indicates the bromide concentration. The chart below may serve as a guide.

Micrograms of Bromide	*Time in Seconds*
500	15
200	20
100	45
50	60
20	100
10	120

The minimum amount of bromide that can be determined is 10 micrograms.

DOUGLAS SILVERNALE

CURRENT LITERATURE

. . . also calling your attention to the following articles appearing in recent hospital and pharmaceutical journals

. . . . . .

ADMINISTRATION

—Dispensing

Archambault, G. F.: Legal Considerations (in after-hours pharmacy service), *Hospitals 32*:56 (May 16) 1958.

Hassan, Jr., W. E.: Six Ways To Provide Pharmacy Coverage After Normal Pharmacy Hours, *Hospitals 32*:54 (May 16) 1958.

Henry, R. G.: Emergency Drug Room A Versatile Solution, *Hospitals 32*:58 (May 16) 1958.

Kent, M.: Drug Cabinet Lightens Nursing Burden at Night, *Hospitals 32*:61 (May 16) 1958.

Pitt, Y.: How We Fill Drug Orders at Night, *R.N. 21*:48 (May) 1958.

HISTORY

Sister M. Frances: The History of the Canadian Society of Hospital Pharmacists, Part III, *Hosp. Pharm.* (Canada) *11*:76 (Mar.-Apr.) 1958.

PARENTERAL SOLUTIONS

—Includes Central Supply

Perkins, J. J.: Sterilization by Heat, *Hosp. Topics 36*:115 (May) 1958.

PROFESSIONAL RELATIONS

—Includes Ethics

Lichter, M. L. and Cousin, J.: Local Focus for Inter-Professional Problems, *Hospitals 32*:53 (May 1) 1958.

MacRostie, M.: You're Not a Pharmacist, *R.N. 21*:45 (May) 1958.

McDonnell, J. N.: Today's Problems in Pharmaceutical Ethics, *Am. J. Pharm. 130*:123 (Apr.) 1958.

GENERAL

Derbyshire, E. M.: How Is the Lighting in Your Pharmacy?, *Hosp. Pharm.* (Canada) *11*:73 (Mar.-Apr.) 1958.

DRUG EVALUATIONS

by the Council on Drugs of the American Medical Association

► THE FOLLOWING MONOGRAPHS and supplemental statements on drugs have been authorized by the Council on Drugs of the American Medical Association for publication and inclusion in *New and Nonofficial Drugs*. They are based upon the evaluation of available scientific data and reports of investigations. In order to make the material even more valuable, dosage forms and preparations of individual drugs have been added to the monographs. These dosage forms and preparations were not taken from material published in the *Journal of the American Medical Association* by the Council on Drugs; rather, they were obtained from such manufacturers' brochures, news releases, etc., which were available to us at the time of publication. An attempt has been made to make the list of dosage forms as complete as possible. However, no guarantee can be made that the list of preparations is complete and it is suggested that hospital pharmacists consult manufacturers' releases for additional dosage forms and preparations.

The issues of the *Journal of the American Medical Association* from which each monograph has been taken is noted under each monograph. Monographs in this issue of the JOURNAL include those published in the *Journal* to May 1, 1958.

Notice

New and Nonofficial Drugs 1958 is now available from your local bookstore and from the publishers, J. B. Lippincott Company, Philadelphia, Pa. This 1958 edition contains monographs of drugs evaluated by the Council on Drugs of the American Medical Association and published in the Journal of the A.M.A. to January 1, 1958. The index listed below contains those drugs evaluated and published between January 1, 1958 and May 1, 1958.

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TO DRUGS EVALUATED IN THIS ISSUE

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TO EVALUATED DRUGS IN THE JANUARY THROUGH MAY 1958 ISSUES OF THE AMERICAN JOURNAL OF HOSPITAL PHARMACY.

Hospital Solutions Methods of Identification

Report of the Council

The Council has authorized publication of the following report.

H. D. KAUTZ, M.D., *Secretary.*

Methods For Identification Of Hospital Solutions And Preparations Of Drugs

The Council has considered a request to investigate the feasibility of developing a uniform system for identification of solutions used in hospitals. The chief basis for exploring this subject arises in connection with previous proposals for adding dyes to color certain medicinal solutions as an aid to their identification and safe use. Although the addition of dyes for this purpose is apparently a practice limited to a few hospitals, it has raised a question whether dangerous confusion might arise by the application of different colors for the same preparation by different institutions. Accidents attributable to confused identity of solutions, although rare, have occurred with both extemporaneously and commercially prepared drug preparations. These have happened especially in situations in which more than one person is involved in obtaining, preparing, and transporting such preparations for administration.

In addition to the proposed use of dyes, other means, such as colored labels, special tags, captioned abbreviations, and oddly shaped or uniquely surfaced containers, can be considered to fall within the category of various aids that have been suggested or employed to identify drugs and chemicals. Labels of certain colors and color combinations are specified under the federal Food, Drug, and Cosmetic Act to distinguish between various commerical preparations and potencies of insulin. On the other hand, the federal agency responsible for administering the law, the Food and Drug Administration, has discouraged the addition of dyes for coloring parenteral solutions because of a lack of adequate information regarding their compatibility and nontoxicity for this purpose. Most dyes certified under the law are for addition to foods and to orally and externally administered drug preparations. Indeed, drug and pharmaceutical manufacturers voluntarily make wide use of colored labels for all types of drugs, as well as dyes for coloring certain types of medicaments. Coloring of tablets to distinguish dosage sizes and the tinting of antiseptic solutions to delineate the area of application are common examples of the varied use of color in marketing medicinal articles. Some drug preparations also exhibit a characteristic color which is inherent.

In its consideration of the application of color for the identification of individual or classes of medicinal preparations, the Council was impressed by the practical limitations of the visual spectrum for achieving distinction between the vast number and kinds of preparations employed in medicine as well as by the existing widespread use of colored medicaments for different purposes. Other practical difficulties include color blindness and the use of light-protective colored glass containers for certain drug preparations. Both the Council and its Committee on Toxicology have separately reached the conclusion that the use of color as a coding device is more likely to contribute to than to prevent confusion in the identity of drug preparations. They also concur with the view of the Food and Drug Administration that the addition of dyes to parenteral solutions for the purpose of identification should be discouraged.

In view of the inevitable human tendency to discover and substitute short-cuts for careful inspection of labels, the employment of colors, abbreviations, or other adjunctive methods for identification of drug preparations should be generally discouraged, except when these may be utilized to improve the legibility of labeling. The Council believes that the problem of mistakes in identity and improper use of solutions and drugs for any purpose both inside and outside hospitals can best be met by greater emphasis on the education of all health personnel and patients to exercise due care in applying and consulting properly informative labels. Care should be taken to insure legibility of container labels by prominent display of the name or active ingredient as well as the potency and dosage of drug preparations. Details which might overshadow such crucial information should be separately presented as a package enclosure.

Peptic Ulcer Current Status of Therapy

Report to the Council

The Council has authorized publication of the following report. Nonproprietary terminology is used for all drugs that are mentioned; when such terminology is not considered to be generally well known, its initial appearance is supplemented by parenthetic insertion of names known to be applied to commercial preparations.

H. D. KAUTZ, M.D., *Secretary.*

Current Status Of Therapy In Peptic Ulcer

JOSEPH B. KIRSNER, M.D., PH.D., CHICAGO

Introduction

Peptic ulcer is one of the important medical problems of our time. Its incidence in the general population is not known precisely but in the United States probably approximates 10% on a lifetime basis. The annual mortality has been estimated in excess of 10,000 persons.

Peptic ulcer is the product of an abnormal physiology characterized by inability of localized areas of the stomach and duodenum to withstand the digestive action of acid gastric juice. In gastric ulcer, the output of hydrochloric acid is normal or low, but its corrosive effect presumably surpasses the diminished resistance of the gastric mucosa. In duodenal ulcer, the secretion of hydrochloric acid is excessive, two to four times greater than normal, and its digestive capacity exceeds the apparently normal resistance of the duodenal mucosa; however, localized areas of vulnerability also may exist in the duodenum, as in the stomach. The hypersecretion in duodenal ulcer is demonstrable for 1 to 24 hours, between meals, during the night, and after the ulcer has healed. Its mechanism is not established completely. Anatomically, it seems to be correlated with an increased number of parietal cells in the fundus and body of the stomach. Physiologically, histamine, acetylcholine, hormonal factors, including gastrin from the antrum, and adrenocortical hyperfunction have received consideration. Present evidence tends to emphasize the role of vagal hyperactivity, acting upon a more responsive gastric secretory mechanism; however, other factors, chemical and humoral, undoubtedly are involved. Peptic ulcer occurs only among individuals capable of secreting acid and only in those areas of the digestive tract exposed to hydrochloric acid, namely, the lower portion of the esophagus, the stomach, the first portion of the duodenum, the jejunum in a patent gastroenterostomy, and in a Meckel's diverticulum containing acid-secreting gastric mucosa. Most techniques for producing ulcers experimentally involve the overproduction of hydrochloric acid or interference with the usual mechanisms for neutralizing and buffering the acid. The hole of hydrochloric acid in the pathogenesis of peptic ulcer thus may be compared to that of the essential catalyst in a chemical reaction; other ingredients (etiological factors) are involved in the process, but, in the absence of the hydrochloric acid, the reaction cannot proceed.

Tissue Resistance

A priori, tissue vulnerability, localized or diffuse, should be a significant factor in the development of peptic ulcer. However, little is known of the nature of tissue resistance. Alterations in the rate of regeneration of epithelial cells, in the mucous barrier and in the vascular supply to the stomach and duodenum, may be important; other mechanisms probably are involved, but their identity is not known.

In the absence of a specific cause, the treatment of peptic ulcer emphasizes protection of the gastroduodenal mucosa from the digestive action of hydrochloric acid. This objective probably would be accomplished by increasing tissue resistance. However, there is no established procedure for improving the defenses of the stomach and the duodenum directly. The animal tissue extracts, hormonal substances, extracts of pregnant mares' urine, cabbage juice, chlorophyll, and other materials of uncertain compositions suggested for this purpose are of no value. The resistance of the stomach and the duodenum probably is enhanced indirectly by improving the general health of the patient, by eliminating gastric irritants in food, drink, and medication (alcohol, salicylates), and by avoiding excessive physical and emotional stress.

Therapeutic Objectives

The complete elimination of hydrochloric acid would abolish peptic ulcer, regardless of tissue susceptibility and other possible etiological factors. However, no method, pharmacological, medical, or surgical, except total gastrectomy, consistently produces complete and permanent anacidity; hence, no procedure per se regularly cures the disease. Therapy emphasizes the effective neutralization or inhibition of hydrochloric acid and concurrent elimination of peptic activity. The clinical objectives are relief of pain, complete healing of the ulcer, and prevention of complications and recurrences. Because of the natural tendency to healing and recurrence, accurate evaluation of treatment in peptic ulcer requires prolonged and well-controlled observation for at least two years and preferably longer.

Therapeutic Management

Diet.—There is no satisfactory evidence relating the usual peptic ulcer to abnormal protein metabolism or to a dietetic deficiency requiring special nutritional supplements. Thus, there appears to be no scientific basis in man for the use of preparations such as a mixture of extracts of cattle liver, brains, and adrenals, together with dehydrated milk and cream, choline hydrochloride, vitamins, and minerals (Exul). The protein-vitamin-mineral supplement (Sustagen) and similar preparations, administered as a drink or intragastric drip, provide additional calories and may buffer hydrochloric acid; however, they are not necessary when the intake and digestion of food are normal. The ulcer patient is capable of eating a more liberal diet than has been advocated in the past. Restriction of food does not necessarily cure peptic ulcer. On the other hand, disregard of dietary considerations neglects a useful means of relieving distress, for certain foods may irritate the gastroduodenal mucosa and contribute to ulcer pain.

The dietary management of peptic ulcer emphasizes frequent feedings of bland foods, avoids mechanical, chemical, or thermal irritants, provides adequate amounts of proteins, carbohydrates, calories, minerals, and vitamins, and assists in the neutralizing and buffering of the gastric contents. The diet includes whole milk and 22% cream, or half and half (12% cream), taken as an equal mixture in quantities of 90 and 120 cc. (3 or 4 oz.) hourly from 7 a. m. to 7 p. m. Chocolate, malt, and protein supplements may be added if a gain in weight is desired. Skimmed milk may be substituted if the patient is obese. In the absence of gastric retention, additional food is administered in the form of six feedings daily. The feedings initially are selected from the following items: cooked cereals, soft boiled eggs, toast, butter, strained cream soups, custards, puddings, plain cookies, jello, and ice cream. After 7 to 10 days of complete relief from ulcer distress, or sooner in the absence of obstruction, the feedings are replaced by a three-meal diet consisting of a substantial breakfast and noon meal and a moderate supper; a small feeding later in the evening also is permissible. The meals are selected from the following list:

- **Cereals**
  - Cream of wheat
  - Farina
  - Refined rice
  - Rice krispies
  - Puffed rice
  - Rice flakes
  - Macaroni
  - Noodles
  - Spaghetti
  - Vermicelli
  - Corn flakes
  - Oatmeal
- **Eggs**
  - Soft boiled
  - Soft scrambled
  - Soft omelet
  - Poached
  - Soft baked
  - Hard cooked
- **Cheese**
  - Cream
  - American
  - Swiss
  - Cottage
- **Milk, Milk Products**
  - Buttermilk
  - Milk
  - Cocoa
  - Ovaltine
  - Eggnog
  - Butter
- **Beverages (1 cup)**
  - Tea
  - Sanka or Kaffe Hag
  - Coffee
  - Postum
- **Potatoes**
  - Baked Irish
  - Mashed Irish
  - Au gratin
  - Escalloped
  - Boiled
- **Cooked or Canned Fruits**
  - Prunes
  - Peaches
  - Applesauce
  - Plums
  - Apricots
  - Pears
  - Baked apples (no skin)
  - Pineapple
- **Raw Fruits**
  - Bananas
  - Oranges (juice, sections, whole)
  - Grapefruit
- **Cooked or Canned Vegetables**
  - Asparagus
  - String beans
  - Carrots
  - Spinach
  - Sweet potatoes
  - Peas
  - Tomatoes
- **Breads**
  - White
  - Toast
  - Melba toast
  - Toasted crackers
  - Croutons
  - Bread sticks
  - Milk toast
  - Biscuits of white flour
  - Plain rolls
  - Zwieback
  - Soda
- **Soups**
  - Consomme
  - Chicken broth
  - Vegetable
  - Rice, creamed
  - Potato, creamed
  - Celery, creamed
  - Tomato, creamed
  - Asparagus, creamed
  - Mushroom, creamed
- **Fish**
  - Salmon, creamed
  - Tunafish, creamed
  - Whitefish, creamed
  - Whitefish, baked
  - Cod
  - Haddock
  - Mackerel
  - Halibut
  - Flounder
- **Meats**
  - Crisp bacon
  - Chicken
  - Turkey
  - Beef
  - Lamb
  - Meat loaf
  - Steak
  - Veal
  - Hamburger
- **Desserts**
  - Vanilla custard
  - Caramel custard
  - Floating island
  - Rice custard
  - Bread pudding
  - Tapioca pudding
  - Cornstarch pudding
  - Plain jello
  - Cottage pudding
  - Angel food cake
  - Ice-box cake
  - Plain cake
  - Lady fingers
  - Sponge cake
  - Arrowroot cookies
  - Ice cream, plain
- **Miscellaneous**
  - Jelly
  - Marmalade

All foods should be well cooked and chewed thoroughly. One cup of coffee in the morning and one or two cups of tea during the day may be permitted. The following foods should be avoided: seasonings, spices, meat extractives, alcoholic and carbonated drinks, cabbage, turnips, corn, nuts, sausage, pork and pork products (except bacon), and fried, very hot, or very cold foods. The intake of milk and cream is decreased gradually from hourly intervals to two-hour intervals and ultimately to between meals. The bland three-meal diet is continued indefinitely, with further additions as indicated by the progress of the patient. The casual suggestion to "watch your diet" or "avoid irritating foods" is vague and ineffectual. The program should be outlined clearly, preferably in a printed list of those foods to be eaten and those to be avoided.

Antacids.—The purpose of antacid therapy is constant neutralization of the acid gastric content. The ideal antacid theoretically should possess these advantages: prolonged, effective neutralization when administered orally in acceptable amounts, absence of subsequent stimulation of secretion, no untoward systemic effects such as alkalosis, no cathartic or constipating action, no interference with digestive or absorptive processes, palatability, and low cost. These qualities each are desirable, but they are not of equal importance. Serious toxic effects would obviate the usefulness of an otherwise potent antacid. The absence of constipation or diarrhea is of secondary clinical value when there is little or no neutralizing action. Effective neutralization is maintenance of the pH of the gastric content between 4.0 and 5.0, or higher; at this hydrogen ion concentration, acid and peptic activity are practically absent. On the other hand, peptic ulcer probably heals with less complete control of gastric acidity.

The ideal antacid thus far has not been developed. Neutralizing efficiency in patients with duodenal ulcer is limited by the excessive rate of gastric secretion and by the rate of gastric emptying. On the other hand, antacids neutralize hydrochloric acid at least partially, relieving pain and facilitating healing. Many preparations are available. The most potent compound probably is calcium carbonate, administered in quantities of 2 to 4 Gm. hourly during the day and evening (7 a. m. to 9 p. m.). The principal disadvantage of calcium carbonate therapy is constipation, especially in older patients; this usually can be corrected by substitution of the more laxative magnesium carbonate in amounts required by the individual patient. Careful attention to bowel function is necessary with all types of antacid therapy.

Therapy with milk and calcium carbonate may be complicated infrequently by the hypercalcemic syndrome. This disorder is characterized clinically by weakness, headache, distaste for milk and food, and by nausea and vomiting. The chemical features are elevation of the serum calcium and blood urea nitrogen levels and temporarily depressed renal function. This complication is more likely to occur in older patients with hypertension and preexisting impairment of renal function, or in those in whom renal physiology is disturbed by gastrointestinal hemorrhage or electrolyte and fluid depletion. It has been observed also in patients taking milk and cream and sodium bicarbonate only. The syndrome subsides rapidly after discontinuance of milk and alkali and the intravenous administration of isotonic sodium chloride solution or dextrose and water for injection.

Combinations of calcium carbonate with glycine or calcium caseinate do not appear to offer special neutralizing advantages. Magnesium carbonate and magnesium oxide are potent antacids; because of their laxative effect, they are prescribed chiefly to counteract the constipating action of the ulcer regimen. Tribasic calcium phosphate, tribasic magnesium phosphate, magnesium trisilicate, magnesium hydroxide, magnesium tartrate, calcium tartrate, and dihydroxyaluminum sodium carbonate in doses of 2 to 4 Gm. hourly, neutralize gastric acidity in varying degrees. Aluminum hydroxide (Alkagel, Al-U-Creme, Aluminum Hydroxide, Amphojel, Creamalin), aluminum phosphate (Phosphaljel), and basic aluminum carbonate (Basaljel), taken alone in liquid or gel form in doses of 8 to 16 cc., and in various mixtures, partially neutralize gastric acidity. Their capacity to inactivate pepsin in vivo seems no greater than that of calcium carbonate; the astringent, demulcent, and coating properties attributed to them are not susceptible to scientific measurement in man. Aluminum hydroxide increases the excretion of phosphate in the feces; however, the serum electrolytes are not altered. The constipating effect of aluminum hydroxide may be counteracted with administration of magnesium trisilicate or magnesium hydroxide. Hydrated sodium aluminum silicate, "nonreactive" aluminum hydroxide, and dihydroxyaluminum aminoacetate (Alglyn, Alzinox, Aspogen, Dimothyn, Doraxamin, Robalate) do not appear to offer any special advantages.

Anion exchange resins, such as polyaminemethylene resin (Exorbin, Resinat), are large insoluble bases with the capacity to absorb the anion of an acid, forming an insoluble resin salt. In alkaline intestinal contents the anion exchange is reversed, and the resin is restored to its original state. Various resins, alone or in combination with antacids, are available; they may lower gastric acidity partially in man. Bismuth salts and hog gastric mucin have no neutralizing value. Sodium carboxymethylcellulose (Carmethose, CMC Cellulose Gum, Sodium Carboxymethylcellulose, Thylose Sodium), alone or in combination, does not offer any special advantages. Protein hydrolysates (Aminonat, Caminoids) given orally may decrease acidity temporarily, but not impressively. The antacid effect of sodium bicarbonate is pronounced but transient; it is not prescribed because of the possibility of alkalosis when taken in large quantities, especially in patients with impaired renal function.

In addition to powders and liquids or gels, some antacids are available also as tablets; these preparations contain aluminum hydroxide, magnesium trisilicate, calcium carbonate, magnesium oxide, or magnesium carbonate, alone, in various quantities and mixtures, or combined with resins milk proteins, and vitamins. Antacid tablets are inferior to powdered or liquid preparations because of the smaller amounts entering into the reaction with hydrochloric acid; however, rapidly disintegrating tablets may obviate this difficulty. Their principal usefulness is as adjunct antacid medication taken away from home or at work, and their effectiveness is dependent upon adequate dosage. A compressed tablet containing milk solids with 220 mg. of magnesium trisilicate, 120 mg. of magnesium oxide, 120 mg. of calcium carbonate, and 30 mg. of magnesium carbonate (Nulacin) also is available. The tablet is kept between gum and cheek and is allowed to dissolve gradually by continuous sucking; 10 to 16 tablets thus may be taken daily. This medicament may neutralize acid more effectively than do standard tablets, but the amounts of antacid are very small. The continuous retention of a large tablet in the mouth may become a tedious ritual, acceptable only to occasional patients.

Antacids act locally upon the gastric contents; since they do not influence the acid-secreting cells, their neutralizing effect is temporary and disappears when the medicament is discontinued. Since the healing time of peptic ulcer may be prolonged and since ulcers often recur, antacid therapy must be prolonged. The hourly schedule is continued until the ulcer has healed completely. The antacid then is prescribed at intervals of two and three hours, and, subsequently, once or twice between meals and during the evening; many patients maintain this latter program indefinitely. The administration of small quantities of mild antacids immediately after meals, a not uncommon practice, is impractical and ineffective, since the food alone may neutralize acid during this period, and the intervals between medication are too long. If antacids are to be prescribed only occasionally, they are more useful several hours after meals when the buffering effect of food has been dissipated.

Gastric acidity also may be neutralized by the continuous administration of milk and cream and alkali, administered through an intragastric tube. One liter of milk containing 5 Gm. of sodium bicarbonate may be administered every eight hours. Another solution is prepared by mixing 100 cc. of aluminum hydroxide or aluminum phosphate gel with 300 or 400 cc. of warm tap water; it is administered at a rate of 15 to 20 drops per minute; 1,500 to 3,000 cc. of the diluted suspension may be given in 24 hours. Food supplements may be given similarly as an additional source of calories for the nutritionally depleted patient. For example, one pound of the previously mentioned protein-vitamin-mineral supplement in one-quart solution provides 300 Gm. of carbohydrate, 150 Gm. of protein, 15 Gm. of fat, and 1,750 calories. It is administered at the rate of

80 to 100 drops per minute. The intragastric drip may be maintained for the 12-hour night period or continuously for as long as 7 to 10 days. The procedure has been recommended in patients with gastric hypersecretion and severe ulcer pain not controlled by ordinary measures, and occasionally in the treatment of massive hemorrhage; it is contraindicated in the presence of pyloric obstruction.

Gastric Antisecretory Compounds.—Diet and antacids do not control gastric acidity in peptic ulcer completely or continuously. Furthermore, many patients are reluctant to continue such a meticulous program indefinitely. Interest in anticholinergic medication is based upon the theoretical possibility of prolonged suppression of acid secretion, permitting a more liberal program. Anticholinergic drugs interfere with the transmission of nerve impulses mediated by acetylcholine at the neuroeffector junctions of postganglionic cholinergic nerves. Their use in peptic ulcer is based upon the concept that parasympathetic (vagal) hyperactivity is chiefly responsible for the gastric hypersecretion of duodenal ulcer and the expectation that these compounds will suppress the neurogenic mechanism. Actually, other phases of gastric secretion also may be influenced by these agents. Most anticholinergic drugs also inhibit gastrointestinal motility and diminish muscle spasm. However, this effect, although it may contribute to the relief of abdominal pain, is not essential to the healing of peptic ulcer.

Average doses of tincture or powdered extract of belladonna do not inhibit acid secretion significantly in patients with peptic ulcer. Atropine sulfate, 0.5 mg. given three or four times daily by mouth, is partially effective; the same dosage given intramuscularly reduces the volume of secretion and the output of acid occasionally. Systemic manifestations of parasympathetic inhibition are frequent with dosages sufficient to inhibit gastric secretion in man. The chief usefulness of atropine and similar compounds in ulcer therapy may be to delay gastric emptying, permitting a longer period of interaction between acid and antacid. Synthetic atropine substitutes, including amprotropine (Syntropan) phosphate, homatropine methylbromide (Malcotran, Mesopin, Novatrin), adiphenine hydrochloride (Trasentin), dibutoline (Dibuline) sulfate, and dicyclomine (Bentyl) hydrochloride, are less effective than atropine. The quaternary ammonium compounds, tetraethylammonium (Etamon) chloride or tetraethylammonium bromide, administered parenterally, and hexamethonium (Bistrium, Esomid, Hexameton, Hiohex, Methium) salts, prescribed orally, may inhibit acid temporarily. However, these drugs cause disturbing side-effects, including postural hypotension and intestinal atony, and are not intended for use in ulcer therapy.

Methantheline (Banthine) bromide temporarily suppresses gastric acidity when injected intramuscularly in doses exceeding 0.03 mg. per kilogram of body weight. The antisecretory effect after oral administration is less impressive. Single oral doses of 50 or 100 mg. of methantheline bromide may lower the volume of secretion; however, the concentration of hydrochloric acid remains unchanged. Doses of 50 or 100 mg. given orally four times daily may provide symptomatic relief, but side-effects are common. Peptic ulcer may recur during the use of methantheline bromide; patients occasionally appear to develop a tolerance to the medication. The antisecretory effect of diphemanil (Prantal) methylsulfate resembles that of methantheline bromide. However, side-effects are less frequent, and 400 to 800 mg. or more may be taken by mouth daily without apparent discomfort.

Many new gastric antisecretory compounds have been developed. Some of these include the following agents.

Drug	Suggested Daily Dose for Adults, Mg.
Benzomethamine (Cotranul) chloride	400
Clidinium (Marplan) bromide	20-25
Hexocyclium (Tral) methylsulfate	75-100
Homatropine (Malcotran, Mesopin, Novatrin) methylbromide	100-200
Methscopolamine (Lescopine, Pamine) bromide	15-30
Methscopolamine (Skopolate) nitrate	6-12
Oxyphenonium (Antrenyl) bromide	40
Penthienate (Monodral) bromide	15-30
Pipenzolate (Piptal) methylbromide	25
Piperphenamine (Darstine) bromide	400
Propantheline (Pro-Banthine) bromide	75-240
Tricyclamol (Elorine, Tricoloid) methylsulfate	200-400
Tridihexethyl (Pathilon) iodide	200

Anticholinergic compounds are much more potent when administered intramuscularly than orally, but parenteral therapy, except in occasional hospitalized patients, is not practical. Since they are more effective against basal-stimulated secretion than against food-stimulated secretion, the medication is taken before meals. Increased amounts, two or three times larger than average, are prescribed at bedtime in an effort to lower the excessive nocturnal gastric secretion. Since the action of these drugs is limited to the period of administration, they must be taken continuously. The objective in peptic ulcer is prolonged inhibition of gastric secretion; therefore, treatment is maintained for long periods of time. The important considerations in anticholinergic therapy are the use of sufficient quantities and sustained regular use of the medicament.

No single anticholinergic compound excels in gastric inhibitory capacity, clinical tolerance, and therapeutic value, although several appear to be more effective than the majority; these include methscopolamine, propantheline, penthienate, homatropine, hexocyclium, and several additional compounds now under study. In general, the drugs that lower acidity most effectively also tend to produce systemic manifestations of parasympathetic inhibition. The symptoms include dryness of the mouth, blurring of vision, constipation, slowing of the urinary stream, headache, drowsiness, heartburn, tachycardia, choking sensation, and mental confusion.

The ideal gastric antisecretory agent, suppressing acidity for long periods of time after oral administration, without development of tolerance and with minimal or no side-effects, thus remains to be synthesized. Present compounds do not produce a true "medical vagotomy." However, they are superior to belladonna, atropine, methantheline, and diphemanil. Several preparations, administered orally, may decrease acid secretion, at least temporarily. As adjuncts to antacids, they probably facilitate more efficient neutralization of the gastric contents; and, in occasional patients at least, they may benefit not only the immediate course but also the long-term course, of peptic ulcer. On the other hand, their value in preventing the complications of peptic ulcer and in decreasing the need for surgery has not been established. The use of anticholinergic drugs alone in the management of peptic ulcer is not recommended. These compounds are contraindicated in the presence of pyloric obstruction, incipient glaucoma, prostatic hypertrophy, and cardiospasm. The continued synthesis of new preparations indicates that the chemical possibilities in this field have not been exhausted.

Ineffective Compounds.—The available antihistaminic compounds do not lower gastric acidity significantly in man and are of no value in the treatment of peptic ulcer. Endocrine preparations, including parathyroid extract, posterior pituitary extract, enterogastrone, urogastrone, sex hormones, and desoxycorticosterone acetate (Cortate, Decortin, Decosterone, Doca Acetate, Percorten), do not reduce gastric acidity significantly in patients with duodenal ulcer. Compounds inhibiting the enzyme carbonic anhydrase may lower the output of hydrochloric acid after intravenous administration. However, large quantities of carbonic anhydrase inhibitors, such as acetazolamide (Diamox) given orally, do not suppress gastric secretion significantly or continuously in patients with duodenal ulcer.

In the absence of a specific cure, the number of alleged ulcer remedies remains enormous. Many have been discredited. Current evidence indicates that the following substances also should be discarded for this purpose: detergents such as sodium alkyl sulfate, urea-formaldehyde resins,

thixotropic gels, bile salts; histidine, extracts of pregnant mares' urine, extracts of animal stomach, duodenum, and colon, chlorophyll, and cabbage juice. Surface-coating agents that theoretically protect the ulcer from hydrochloric acid, such as emulsified dimethylpolysiloxanes, have not been developed for clinical use.

Gastric Aspiration.—Nightly aspiration of the stomach with an Ewald or Levin tube is useful in hospitalized patients with gastric retention, since it removes a considerable quantity of acid content, otherwise bathing the ulcer and contributing to its activity. Gastric aspiration also is an effective method of relieving severe ulcer distress, and it may provide important information regarding the management of patients with retention. A decrease in the nightly aspiration to a volume of 90 to 120 cc. suggests that inflammation, edema, and spasm may be causing the obstruction, rather than cicatricial stenosis. Persistently large aspirates, on the other hand, indicate organic obstruction, necessitating surgical treatment.

Roentgen Irradiation of the Stomach.—Mild roentgen irradiation of the stomach may be utilized as adjunct therapy for the purpose of decreasing or suppressing completely the secretion of hydrochloric acid. Approximately 1,600 to 2,000 r, total depth dose, is directed in 10 divided applications to the fundus and body of the stomach, over fluoroscopically outlined anterior and posterior portals. The inhibitory effect of irradiation upon gastric secretion depends upon the destruction of parietal cells. The development of anacidity is followed invariably by complete healing of the ulcer and by no recurrence for the duration of the anacidity. Although the degree of secretory inhibition is quite variable, the clinical course often seems distinctly benefited. Harmful effects have not been observed. Gastric irradiation also has been combined with the surgical procedure of antroduodenectomy. Approximately two months after operation, a depth dose of 2,000 r is delivered in divided amounts during a period of three weeks. Roentgen irradiation of the stomach, despite favorable reports, thus far has not been widely used as a therapeutic adjunct in peptic ulcer. The procedure is not employed in children or young men and women. Its primary indication is for recurrent peptic ulcer not consistently controlled by adequate medical management in individuals above the age of 45 years.

Special Problems

Physical and Emotional Stress.—The admonition to treat the patient as well as his ulcer is not a trite remark. Excessive physical fatigue and prolonged emotional stress may increase the secretion of hydrochloric acid and the susceptibility of the gastroduodenal mucosa to injury. Rest and relief of emotional tension, consequently, are important adjuncts in therapy. The needs vary with the individual; some patients can adjust their daily routine to obtain more rest without discontinuing their work; others respond more effectively to a vacation away from home. Hospitalization for several weeks is desirable in patients with persistent severe ulcer distress and especially in the management of recurrent or complicated ulcers. Hospitalization provides an opportunity for careful regulation of therapy and more thorough indoctrination of the principles of treatment; it also removes the patient, at least temporarily, from the stress-producing environment.

Management of the emotional problems requires identification of the disturbing factors, domestic, social, or environmental, and intelligent efforts at their control by avoidance, "ventilation" of the problem, reorientation of the patient, or release of tension in pleasant recreational activities. The ultimate goals are the establishment of regular habits and a life of moderation. The support provided by the interested, friendly, yet objective physician may be helpful in this regard. Formal psychotherapy usually is unnecessary. Mild sedation with 30 mg. of phenobarbital given four times daily promotes relaxation and rest; sedatives at night are useful in ensuring an adequate amount of sleep. "Tranquilizing" drugs also are prescribed for this purpose, alone or combined with anticholinergic medication. They are useful in occasional patients but do not appear to have any special advantages in ulcer therapy. Chlorpromazine (Thorazine) hydrochloride given in large amounts may decrease gastric secretion; on the other hand, large doses of reserpine (Rauloydin, Raurine, Reserpine, Reserpoid, Roxinoid, Sandril, Serpasil, Serpiloid) given orally may increase the output of hydrochloric acid.

Tobacco, Alcohol, and Ulcerogenic Drugs.—There is no conclusive evidence at present that average smoking increases gastric secretion significantly. The use of tobacco by ulcer patients is dealt with most practically on an individual basis. Moderate smoking seems without harm in many instances. Excessive smoking, on the other hand, is undersirable, perhaps because of the decreased intake of food and diminished neutralization of gastric acidity. In such instances, the habit should be discouraged. The recommendation of complete abstinence is preferable to the ineffectual suggestion of "decreasing" the quantity of tobacco. Excessive smoking ordinarily reflects increased nervous tension; the important problem, therefore, is relief of the emotional stress.

Since alcohol tends to increase the secretion of hydrochloric acid, its use should be avoided. Excessive drinking of coffee may irritate the gastroduodenal mucosa and reactivate peptic ulcer. Numerous medicaments may increase gastric secretion, irritate the stomach and the duodenum, and predispose the patient to the recurrence or new development of peptic ulcer, with bleeding. These compounds include salicylates, corticotropin (Acthar, Corticotropin, Depo-Acth), adrenal cortical steroids including prednisone (Deltasone, Deltra, Meticorten) and prednisolone (Delta Cortef, Hydeltra, Meticortelone, Sterolone), phenylbutazone (Butazolidin), and reserpine. They should be avoided, if possible, in patients with known peptic ulcer or administered in conjunction with antacids.

Benign Gastric Ulcer

The foregoing principles of treatment apply to benign gastric ulcer as well as to duodenal ulcer. However, several aspects of this problem require additional comment.

Gastric ulcer resembles duodenal ulcer in symptoms and course. The pain mechanism, namely, acid irritation of exposed nerves in the ulcer crater, is the same. In contrast to duodenal ulcer, the output of hydrochloric acid in gastric ulcer is normal or low. Nevertheless, the complete and permanent absence of acid, developing "spontaneously," induced by gastric irradiation or after gastric resection, leads to complete healing. The therapeutic objectives, therefore, are identical with those in duodenal ulcer. The two principal differences are the differentiation of benign ulcer from malignant ulcer and the possible malignant transformation of benign gastric ulcer. The differentiation of benign from malignant ulcer, although difficult, is possible in most cases when all diagnostic methods are utilized, including x-ray, gastroscopy, and exfoliative cytology. Neoplastic transformation of benign gastric ulcer, a theoretical possibility, occurs rarely, if ever.

All patients with gastric ulcer should be hospitalized. Medical management is permissible when the total evidence indicates a benign ulcer and when the course of the lesion can be observed carefully at frequent intervals. The therapeutic test may be maintained for four to eight weeks, with periodic reevaluation; however, two or three months may be required for total healing of a benign ulcer. Many gastric ulcers heal completely during adequate treatment. Nevertheless, medical therapy is not as consistently effective as is desirable, and recurrences are frequent. On the other hand, partial gastric resection is successful in the great majority of cases. The recurrence rate is low because of the subnormal secretion of hydrochloric acid. Gastric resection

is indicated under the following conditions: (1) inability to exclude malignant ulceration, (2) all ulcers on the greater curvature of the stomach (recognizing the fact that such lesions occasionally may be benign), (3) ulcers persisting despite adequate medical treatment, (4) recurrent bleeding, and (5) gastric ulcer complicated by delayed gastric emptying.

Jejunal Ulcer

Jejunal ulcer presents a difficult therapeutic problem because of the tendency of the lesion to penetrate, bleed, and perforate. Some patients respond to careful medical management in the hospital, including roentgen irradiation of the stomach, which is applicable to persons over 45 years of age. As a rule, however, surgery (transabdominal vagotomy, with or without further gastric resection, depending upon the circumstances) is preferred.

Gastrojejunocolic Fistula

Gastrojejunocolic fistula requires initially the restoration of nutrition with a diet high in proteins, calories, and supplements and the correction of electrolyte and fluid imbalance. The operative procedure consists of resection of the fistula, reconstruction by means of gastroenterostomy, and a more adequate gastric resection or vagotomy.

Complications

Intractable or Refractory Peptic Ulcer.—The term "intractable" ulcer implies a lesion not responding to the usual treatment and, therefore, one requiring operation. Intractability is interpreted differently, not necessarily critically, by different observers; "usual" therapy is not synonymous with "effective" treatment. The program prescribed in an individual case may be inadequate, or the patient may not adhere to the regimen because of a poor patient-physician relationship. Many cases classified as intractable undoubtedly belong in this category of apparent intractability. The ulcers actually are not refractory, for, under proper circumstances, they heal completely. In the truly intractable peptic ulcer, treatment ordinarily effective fails to promote healing or to prevent complications. The underlying cause may be serious emotional difficulties, uncontrollable gastric hypersecretion, decreased tissue resistance, or irreversible complications, such as obstruction or penetration of the ulcer with adherence to the pancreas. In evaluating an intractable peptic ulcer, careful study of all possible contributory factors is necessary.

Gastric Retention.—Gastric retention in patients with peptic ulcer usually is attributable to inflammation and edema adjacent to an active ulcer, temporarily narrowing the channel through the pylorus and duodenum. This complication often responds within 7 to 10 days to a medical regimen of no food or drink taken by mouth, continuous gastric aspiration, and the parenteral administration of electrolytes and fluids. The continuous removal of acid permits the ulcer to heal; the edema and inflammation subside, and the channel through the pylorus and duodenum once more is patent, as indicated by decreasing volumes of gastric aspirate and by the maintenance of or gain in body weight. The use of antispasmodic and anticholinergic compounds under these circumstances is undesirable, for the subsequent decrease in gastric motility may intensify the retention. In perhaps 15% of cases with retention, the obstruction is caused by scarring and cicatricial narrowing of the pylorus and duodenum. This type of obstruction requires surgical treatment, preferably gastroenterostomy and vagotomy, or partial gastric resection.

Acute Perforation.—Acute perforation is the most urgent indication for operation. Surgical treatment usually is limited to simple closure of the perforation, although in patients with a long history of ulcer recurrence, who are in good condition, partial gastric resection also may be performed. Excellent therapeutic results apparently may be obtained with a program including prompt, continuous, and effective amounts of electrolytes, dextrose and water, sulfonamides and antibiotics, and supportive care. The nonoperative approach is based upon the observation that early perforations will seal rapidly if the stomach is emptied and kept so by aspiration. It seems to be indicated especially in patients hospitalized approximately 24 hours or longer after the perforation and in individuals with difficult medical problems who are serious operative risks.

Massive Hemorrhage.—Hemorrhage complicates the course of peptic ulcer in perhaps 20 or 25% of cases; some patients appear to have a definite tendency to recurrent bleeding. Therapy usually is medical. It includes rest in bed and sedatives, such as 120 mg. of phenobarbital sodium given intramuscularly every four to six hours for restlessness. The blood type of the patient is determined and blood made available immediately. The hemoglobin level and the erythrocyte count or the hematocrit is measured daily or as often as the clinical course indicates. If the patient is vomiting, food and drink are withheld until the vomiting subsides. Otherwise, milk and cream and antacids are administered hourly during the day, as in the standard program; the alkali is continued every two hours during the night. Transfusions of whole blood, 500 to 600 cc., are administered when the systolic blood pressure falls to 100 mm. Hg, when the pulse rate exceeds 100, when the erythrocyte count decreases to below 3 million per cubic millimeter, or when there is continued severe hemorrhage, regardless of any criteria. In utilizing the pulse rate as an index of continued bleeding, measurements probably should be made with the patient in the sitting or the standing position, since the pulse rate with the patient horizontal may not increase significantly, despite considerable loss of blood. A preparation of 5% dextrose in isotonic sodium chloride solution may be administred subcutaneously in limited quantities. Additional measures may include the administration of antisecretory drugs and, infrequently, the intragastric drip. Gastric lavage with ice water or with hemostatic medication is not necessary. The antacid program is maintained until the erythrocyte count and the hematocrit are stabilized and the feces are negative for occult blood. The subsequent treatment is that outlined for uncomplicated peptic ulcer.

Surgery is indicated in bleeding peptic ulcer under the following conditions: (1) severe, persistent hemorrhage during medical treatment, (2) recurrent bleeding, (3) stomal ulcer with hemorrhage, (4) hemorrhage and perforation, and (5) hemorrhage and pyloric obstruction. The decision for operation usually is made during the first 48 or 72 hours, because complications and mortality rate rise with persistent uncontrolled hemorrhage. Occasionally, the decision may be deferred for several additional days, provided that the patient's general condition remains good and an adequate blood volume is maintained.

Bleeding is more severe and more likely to persist in patients 50 years of age and older than in younger persons; therefore, operation is indicated in older patients not responding promptly to medical treatment. A useful index is provided when two or more transfusions per day, or during a portion of a day, are insufficient to replace the blood lost, and the bleeding continues (the so-called test of transfusion). Since the hazards of surgery also are increased in this age range, the surgeon also must accept a higher calculated risk. The operation of choice in massive hemorrhage from peptic ulcer is partial gastric resection, excision of the lesion if possible, and ligation of the bleeding vessel. Gastroenterostomy alone or with vagotomy usually is not satisfactory for this purpose. "Blind" gastric resection

may be performed to control bleeding from tiny gastric erosions, so small as to escape recognition clinically or at operation. Excellent results have been reported; however, opinions vary as to the routine applicability of the procedure. Surgery does not protect completely against recurrent hemorrhage, although the possibility is greatly reduced.

Prevention of Recurrences

The immediate results of effective therapy in peptic ulcer are good, with prompt relief of pain and complete healing. The long-term results are less encouraging, perhaps because of failure to maintain adequate and continuous neutralization of the acid gastric content. Recurrences of peptic ulcer are frequent with almost any type of therapy, medical or surgical, which does not abolish acid secretion permanently. The precipitating factors recognized and emphasized most often are physical fatigue, emotional stress, dietary indiscretions, irritating drugs, and intercurrent illness. There are no specific measures completely protecting against recurrences, except the production of anacidity. However, the tendency to recurrences may be lessened and their severity decreased by a comprehensive program, including (1) thorough treatment of the initial lesion and careful supervision of the patient subsequently, (2) education of the patient as to the nature of the disease and the principles and objectives of treatment, (3) continued use of a bland diet, (4) a practical but efficient program of acid control, (5) avoidance of alcohol, tobacco, and irritating drugs, (6) sufficient rest and sleep, (7) control of emotional problems, if possible, and (8) proper care of respiratory infections and other intercurrent illness.

Conclusion

Despite the limitations of medical management, current methods of treatment, when applied properly, are effective in the vast majority of patients with uncomplicated peptic ulcer. Treatment should not be confined to a single therapeutic measure. The emphasis should be on total management, including use of antacids, anticholinergic drugs, and sedatives, avoidance of gastrointestinal irritants, and skillful attention to emotional problems. Inadequate results usually are attributable to inadequate therapy. The fact that treatment is more or less nonspecific does not justify its casual and indifferent application. The continued study of hormonal factors, of drugs acting upon enzyme systems implicated in the process of gastric secretion, and of secretory inhibitors in the gastric content eventually may yield a medical technique for producing sustained gastric anacidity. The cure of peptic ulcer obviously will depend upon further knowledge of its pathogenesis, especially the nature of tissue resistance and the mechanism of secretion of hydrochloric acid.

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J.A.M.A. *166*:1727 (Apr. 5) 1958.

► *Eli Lilly and Company's* consolidated net sales for the first quarter of 1958 were an estimated $45.2 million. This was the second best first quarter in the company's history, in spite of a drop of $11.3 million from the sales record of a year ago, President Eugene N. Beesley pointed out. Net income after taxes was an estimated $6.4 million, down $4.9 million from the all-time high of a year ago. The lower earnings were the result of increased operating expenses as well as decreased sales.

MEETING DATES 1958

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June

Institute on Hospital Pharmacy (A.H.A.)
June 16-20, Philadelphia, Pa. Temple University Campus

Catholic Hospital Association
Annual Convention—June 21-26, Atlantic City, N. J. Convention Hall; Dennis Hotel

Institute for Hospital Pharmacists (C.H.A.)
June 21-24, Atlantic City, N.J.

Parenteral Drug Association
June 6, Chicago, Ill. Edgewater Beach Hotel

American Medical Association
Annual Convention—June 23-27, San Francisco

July

Philadelphia College of Pharmacy and Science Summer Courses
July 7-August 1, Philadelphia, Pa.

Preparation of Parenteral Products
July 7-18, Fifth Annual Radiochemical Institute

Principles of Radioactivity and Measurement
July 7-18

Biological and Medical Application
July 21-25

Radiochemical Instrumentation
July 28-August 1

Institute on Hospital Pharmacy (A.H.A.)
Chicago—July 28-August 1. University of Chicago

August

American Hospital Association —
Annual Convention—August 18-21, Chicago, Ill. International Amphitheatre; Palmer House

35th Plant Science Seminar
Aug. 18-22, Big Rapids, Mich. Ferris Institute

September

International Pharmaceutical Federation
September 8-13, Brussels, Belgium

October

Sixth Annual Symposium on Antibiotics
October 15-17, Washington, D.C. Willard Hotel

December

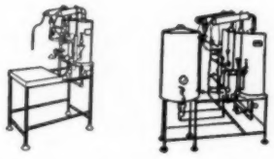
American Association for the Advancement of Science
December 26-31, Washington, D.C.

Barnstead Briefs

A COLUMN DEVOTED TO THE LATEST WATER PURIFICATION DEVELOPMENTS IN THE HOSPITAL

YOUR WATER STILL

Double or triple distilled water is often specified for the preparation of intravenous solutions. Such multiple distillation feeds distilled water from the condenser of one still directly to the evaporator of the next still for re-distillation. Thus the still which delivers the final distillate will have no scale in its evaporator . . . thereby insuring against foaming and priming into the condenser. To further insure the pyrogen-free quality of the final distillate, a Spanish prison type Q baffle is a standard feature on all Barnstead Stills.



KEEPING DISTILLED WATER PURE

Contamination of distilled water often occurs through improper handling and unclean receptacles after it is received from the still. Thus the purity required for many exacting hospital requirements is ruined. An easy check for such contamination is by a conductivity type test

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OPERATING AND MAINTENANCE HINTS

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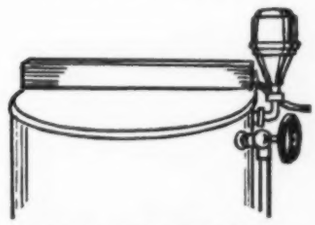
FIELD REPORTS

The purification of water by demineralization (ion exchange) is generally far less expensive than by distillation, though bacteria, organics, and pyrogens are not removed by this process. Some hospitals use Barnstead Demineralizers to provide pure water for washing glassware etc., thus effecting operating savings where sterility and freedom of pyrogens is not important. Hospitals also use demineralizers to purify water before it is fed to the evaporator . . . an effective safeguard against foaming and priming.

WOULD YOU BELIEVE

80 years ago when Barnstead was first founded, distilled water was used rarely in the hospital. One use was for drinking purposes as part of a diet routine. It is of interest that Alexander Graham Bell, inventor of the telephone, ascribed his good health and 75 years of age to "a small distiller (Barnstead) from which I procure all my drinking water".



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POSITIONS

in hospital pharmacy

PERSONNEL PLACEMENT SERVICE

The Personnel Placement Service is operated without charge for the benefit of hospitals and pharmacist members of the American Pharmaceutical Association and the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS. The ultimate purpose is the improvement of pharmaceutical services in hospitals, by more adequately fulfilling hospital pharmacy personnel needs and by locating positions which provide challenging opportunities for pharmacists who have indicated an interest in a hospital career.

By participating in the service, the hospital indicates a desire to achieve a pharmaceutical service which meets the *Minimum Standard for Pharmacies in Hospitals.* A description of the position should be submitted to the Division of Hospital Pharmacy on the forms provided. The hospital will receive applications directly from the applicant. The hospital agrees to reply to each application received and to notify the Division of Hospital Pharmacy when the position is filled.

The pharmacist, by participating, agrees to submit a Personnel Placement Service Information Form to the Division of Hospital Pharmacy. The applicant will then be notified of openings listed with the Service as they become available and can negotiate directly with the hospital if he is interested. It is agreed that the Division of Hospital Pharmacy will be notified as soon as a position is accepted.

A listing of positions open and wanted will be made regularly in the AMERICAN JOURNAL OF HOSPITAL PHARMACY without charge. Neither the name of the hospital offering the position nor the name of the applicant will be listed, except by code. All inquiries should be directed as shown above, including the code number.

Address all inquiries to

Division of Hospital Pharmacy
2215 Constitution Avenue, N. W.
Washington, 7, D. C.

positions wanted

CHIEF PHARMACIST—Prefers small general hospital, but will consider larger hospital; prefers Mich. and midwest. Two years' experience hospital pharmacy. PW-10.

PHARMACIST—female; experience in both hospital pharmacy and retail pharmacy. Prefers Southwest or Mid-Atlantic area. PW-11.

CHIEF PHARMACIST—prefers general hospital in Fla.; registered in Ohio and Fla.; experience in hospital and retail pharmacy. PW-12.

CHIEF PHARMACIST—(or Asst. Chief Pharmacist in large hospital); prefers vicinity of St. Louis; now employed as staff pharmacist. Registered in Mo. PW-13.

CHIEF PHARMACIST—Prefers Minn. or Calif., registration in both states; 10 years' experience government service, including commissions in U.S. Public Health Service and Navy; experience with VA as chief pharmacist; Ph. D. in Pharmacy. PW-15.

PHARMACIST—N. J. registration; prefers Pa., Fla., D.C., or Va.; experience in managing retail pharmacy. PW-18.

CHIEF PHARMACIST OR CHIEF PHARMACIST PURCHASING AGENT—prefers nonsectarian and nongovermental institution of up to 200-bed capacity or larger. Now employed. Experienced retail and hospital pharmacy. PW-19.

CHIEF PHARMACIST IN A TEACHING HOSPITAL—registered Ind., Mich., and Mo.; prefers general hospital in Midwest; experience in teaching and in hospital pharmacy. PW-26.

PHARMACIST—registered in Ohio since 1934; experience in retail pharmacy only (23 years). PW-27.

PHARMACIST—prefers vicinity of Chicago; registered in Ill., now employed there. Graduate of Univ. of Ill. College of Pharm. PW-31.

CHIEF PHARMACIST OR ASSISTANT PHARMACIST—Prefers medium size hospital; registered in Ind., Mich., and Wis. 8 years' experience chief pharmacist and purchasing agent. Prefers Midwest or East. PW-32.

STAFF PHARMACIST—B.S. Mass. College of Pharmacy; age 27; registered in Mass. and N.H. 8 years retail experience. PW-35.

CHIEF PHARMACIST OR ASSISTANT CHIEF PHARMACIST—B.S. Pharm., M.S. in Hospital Pharm. Male; prefers East or Midwest. PW-36.

PHARMACIST (LARGE TEACHING HOSPITAL) OR ADMINISTRATOR—Registered in Ohio; experience in retail pharmacy, hospital administration and X-ray. PW-37.

PHARMACIST—Male, married; B.S. four years retail experience Army Dispensary. Registered New York desires to locate in East. PW-44.

PHARMACIST—Graduate of Medical College of Va.; age 26; two years Marine Corps. Managerial experience. PW-45.

HOSPITAL PHARMACY INTERN—Graduate of Univ. of Wash. has completed military service. Prefers northwest. PW-46.

PHARMACIST—graduate of Wayne Univ. College of Pharmacy. Hospital experience prefers D.C. area. PW-49.

STAFF PHARMACIST—Graduate Howard Univ. College of Pharmacy; limited experience; anxious to learn. Any location. PW-50.

STAFF PHARMACIST—Graduate George Washington College of Pharmacy extensive retail pharmacy experience. Prefers D.C. or Fla. PW-52.

CHIEF PHARMACIST—completed hospital pharmacy internship. Registered in Pa. and Tex. Male—completed service requirements. PW-55.

CHIEF PHARMACIST—prefers middle West; registered in Ill.; female, single; graduate of Univ. of Ill. College of Pharmacy; now employed as Chief Pharmacist. PW-61.

CHIEF PHARMACIST—M.S. degree in hospital pharmacy; prefers East; male, single; extensive experience including pharmacy and administrative officer in Air Force. PW-62.

STAFF PHARMACIST—Completed military requirements; experienced in hospital pharmacy; prefers mid-Atlantic area, single. PW-63.

CHIEF PHARMACIST—registered in Tenn., La., Tex.; prefers South; graduate Univ. of Tenn., School of Pharmacy. PW-64.

PHARMACIST—Desires position Baltimore area; prefers small hospital; experience includes 21 years as owner-manager of retail store. PW-65.

INDIAN PHARMACIST—desires appointment to obtain higher training in hospital pharmacy; graduate Madras University; 1½ years' experience in 1,000 bed hospital, including inpatient and outpatient dispensing, parenteral and general manufacturing and administration. Available September, 1958. PW-68.

STAFF PHARMACIST—registered in Pa.; female; prefers to locate in large city; any section of the country. PW-67.

CHIEF PHARMACIST—M.S. degree in hospital pharmacy; served residency at VA Center in Los Angeles; 3 years' experience as chief pharmacist in VA since that time. Registered in Ky. and Fla.; prefers Midwest. P.W.-69.

CHIEF PHARMACIST—male, married; B.S., Ph. G. now employed chief pharmacist. Prefers South or Southeast. Registered Ala. and Va. Desires administrative work along with pharmaceutical. PW-70.

CHIEF PHARMACIST—male, married. B.S. 3 years' hospital experience; Registered N.Y. and Vt. desires to locate in New York or adjoining state. PW-71.

STAFF PHARMACIST—female married; internship at Freedman's Hospital; experienced in hospital pharmacy. B.S. prefers D.C. area. Registered in Ind., D.C. and N. Car. PW-72.

CHIEF PHARMACIST—female, singie; hospital experience. Desires position 100 bed hospital. B.S. Registered Ky. Prefers Ky. PW-73.

HAITIAN STAFF PHARMACIST—male, married. Has five years' hospital experience. Present owner of pharmacy. Desires to locate in northeast U.S. PW-74.

ASSISTANT CHIEF PHARMACIST—male, married. Registered in Calif. and Wash. Background of drug company representative, retail pharmacy and now employed in Clinic and Research Foundation as Chief Pharmacist. Prefers Pacific states or Ariz. location. PW-76.

CHIEF PHARMACIST—male, single. B.S. and M.S. in Hospital Pharmacy. Serving hospital pharmacy internship. Prefers Midwest or East. PW-77.

CHIEF PHARMACIST—male, married, registered N. Y. and Pa. Extensive hospital pharmacy experience. Now employed as assistant director of pharmacy. Prefers eastern part of country. PW-78.

ASSISTANT PHARMACIST—male, married. Registered Minn. 10 years' hospital experience. Desires midwest location. PW-79.

ASST. CHIEF PHARMACIST—male, single. Registered N.Y., Vt. Hospital pharmacy internship; Prefers East. PW-80.

CHIEF PHARMACIST—male, married, registered Mass., Conn. and Calif. Six years retail and five years' hospital experience. M.S. hospital pharmacy. Desires northeast location. PW-81.

ASSISTANT CHIEF PHARMACIST—male, single; registered Neb. and Pa. Now instructor in Pharmacy. Background of hospital and retail pharmacy. M.S. Pharmacy. Desires Midwest. PW-82.

PHARMACIST—(relief) male, single. Registered N.J. Hospital background and internship. Locate N.J. PW-83.

PHARMACIST—Self-employed retail pharmacy for 20 years Ph.G. degree; registered N.Y. 3 years' hospital experience. Prefer locate N.Y. PW-84.

ASSISTANT CHIEF PHARMACIST—Male, married. Registered Ia. Three years USAF hospital experience. Served hospital pharmacy internship. Candidate M.S. August '58. Prefers Iowa and West. PW-85.

CHIEF PHARMACIST—16 years hospital pharmacy, presently employed Chief Pharmacist. Female, single. Registered Mich. and Ill. Prefers locate Midwest. PW-85-A.

CHIEF PHARMACIST—male, single. M.S. hospital pharmacy. Now employed as instructor. Registered Tenn. Hospital pharmacy experience. PW-86.

STAFF PHARMACIST—4 years' hospital pharmacy experience; prefers Wash. state (registered). Female, married. B.S. pharmacy. PW-87.

IRANIAN PHARMACIST—desires opportunity to continue hospital pharmacy studies; single, age 30; excellent academic background; presently studying industrial chemistry. Prefers location in the West or Northeast. PW-88.

ASSISTANT CHIEF PHARMACIST—female, single; B.S. 1 year hospital pharmacy internship; registered Okla. Prefers West or Southwest. PW-89.

STAFF PHARMACIST—female, married; registered La., Tex. and N.Y. 2 years' hospital experience. Desires locate Northeast or Southeast. PW-90.

positions open

STAFF PHARMACIST—registered in Ill.; for manufacturing or dispensing in large teaching hospital; excellent equipment; good hours; two weeks' vacation; sick leave; minimum starting salary $470.00 per month; higher salary for those experienced in manufacturing. PO-1

ASSISTANT CHIEF PHARMACIST—eligible for licensure in N.J.; 350 bed hospital; 44 hour week, 2 weeks' vacation; salary $5200 to $5700. PO-6

PHARMACIST—80 bed hospital; full responsibility for pharmacy and central sterile supply services; minimum of one year experience in hospital pharmacy; salary open. PO-17

ASSISTANT CHIEF PHARMACIST—209 bed general hospital, expanding to 300 beds; 40-hour week; 3 weeks' vacation; $5,000.00 annually; N.J. registration required. PO-18

PHARMACIST—162 bed hospital located in Ohio; assume complete charge of the department; prefer woman with hospital internship; salary open. PO-21

ASSISTANT CHIEF PHARMACIST—185 bed hospital; prefer member of Seventh Day Adventist Church. PO-22

STAFF PHARMACIST—eligible for licensure in Conn. 279 bed hospital; new, modern general hospital located on Long Island Sound, 28 miles from N.Y. City; excellent working conditions and personnel policies. PO-23

CHIEF PHARMACIST—Ky. registration required; salary, $6,420; 40-hour week; 4 weeks' vacation; noncontributory retirement plan; guaranteed annual salary increases. PO-26

STAFF PHARMACIST—female preferred; 274 bed general hospital and 172 bed maternity hospital; Calif. registration required; salary $525.00 per month; benefit program represents 17 percent of base salary. PO-27

CHIEF PHARMACIST—private hospital in S. Car.; to be in complete charge of pharmacy, including purchase and control of drugs; work with medical staff; salary $400 to start; retirement program; 41 hour week, 2 weeks' vacation. PO-28

ASSISTANT CHIEF PHARMACIST—315 bed community hospital located in N.Y. state; female preferred; 40 hours per week; three weeks' vacation. Salary open. PO-31.

ASSISTANT CHIEF PHARMACIST—181 bed general hospital; Calif. registration required; 40 hour week; two weeks' vacation; salary $450 to $500 per month. PO-32.

STAFF PHARMACIST—550 bed general hospital located in Ohio; registration required; 40 hour week; two weeks' vacation; salary $2.50 per hour or based on experience. PO-34.

STAFF PHARMACIST—259 bed general hospital; Virginia registration required; hospital pharmacy experience preferred; 40 hour week, 2 weeks' vacation; salary open. PO-35.

STAFF PHARMACIST—750 bed general hospital located in N.Y. state; B.S. degree required; hospital pharmacy experience desirable but not necessary; 40 hour week; two weeks' vacation; $450 per month. PO-36.

STAFF PHARMACIST—manufacturing, dispensing, inventory control and some supervision; registration in Tenn. required; salary $385.00 to $450.00 per month; 44 hour week; paid sick leave. PO-37.

STAFF PHARMACIST—prefer one or more years' experience, with at least one year internship; 42-hour week; 4 week-vacation; salary $450 month plus one meal; 660 bed teaching hospital. PO-38.

ASSISTANT CHIEF PHARMACIST—200 bed general hospital located in Tenn.; excellent opportunity for advancement; generous benefits; salary open. PO-39.

STAFF PHARMACIST—460 bed general hospital located in Mass. Prescription filling, some manufacturing. Two weeks' vacation; 40 hours per week, hospital employment benefits. PO-40.

STAFF PHARMACIST—2500 bed general hospital. Registration in Ohio required. Large O.P.D. some manufacturing. Hospital experience not necessary. 2 weeks' vacation; 40-hour week; salary $100 to $110 week. PO-41.

STAFF PHARMACIST—350 bed general hospital. Must be registered in N.Y. state and have B.S. 2 weeks' vacation; 44 hours per week; salary $4,680 to $5,500; hospital employment benefits. PO-42.

CHIEF PHARMACIST—120 bed general, non-profit hospital. Individual will have complete charge of ordering, dispensing and charging of medical supplies; also assist in general hospital purchasing. Either male or female; registration in Ohio required; experience in retail pharmacy given preference. Salary open; 40-48 hours per week; 2 weeks' vacation; other general hospital benefits. PO-44.

ASSISTANT CHIEF PHARMACIST—150 bed general hospital located in Midwest; 100 bed addition with outpatient service anticipated. Prescription filling and supervision of pharmacy aide; limited manufacture of nonsterile solutions. Registration preferred. Salary open; 40-48 hour week; sick leave and holidays with pay. PO-45.

CHIEF PHARMACIST—325 bed general hospital located in Pa. Sufficient background and experience to operate department in accordance with minimum standards and some small-scale manufacturing required. 4 weeks' vacation; 40 hour week, other hospital employment benefits. Salary $5500. PO-46.

ASSISTANT CHIEF PHARMACIST—For hospital described in PO-46. Must be capable of assuming complete responsibility in absence of Chief Pharmacist. Same benefits. Salary $4500. PO-47.

STAFF PHARMACIST—487 bed general hospital. Inpatient and outpatient prescriptions; manufacture of some injectibles. Male or female, will take recent hospital internship graduate with high academic achievement. 40-hour week, 2 weeks' vacation and other hospital benefits. PO-48.

STAFF PHARMACIST—480 bed general hospital must be (or eligible) registration Ohio. Varied duties including stock control, purchasing, assisting in instructing student nurses in pharmacology. 40 hour week, 2 weeks' vacation, other benefits. PO-49.

STAFF PHARMACIST—300 bed general hospital. Inpatient orders—no bulk compounding. Must be eligible for Ill. registration. 44-hour week, 2 weeks' vacation. PO-50.

ASSISTANT CHIEF PHARMACIST—550 bed general hospital. Assume supervision of five pharmacists and two porters. Must have N.Y. registration. At least 5 years' experience in hospital pharmacy. 35-hour week, 2 weeks' vacation, other benefits. Salary $4500 to $5000. PO-51.

STAFF PHARMACIST—450 bed general hospital. B.S. in pharmacy, 1 year hospital pharmacy internship or one year's experience professional pharmacy, Col. licensure. 40 hour week, vacation —other benefits. Salary $383. PO-52.

CHIEF PHARMACIST—200 bed general hospital. Take complete charge of pharmacy, must be eligible registration in N. Mex. 44-hour week, two weeks' vacation, other benefits. Salary $475-$500. PO-53.

CHIEF PHARMACIST—325 bed private hospital. Position includes compounding, dispensing, manufacturing all types of pharmaceuticals. Must be eligible for registration in N. Car. Male or female, hospital experience desirable, but not necessary. About 45 hour week, 3 weeks' vacation, other benefits. Salary $450-$500. PO-54.

► *Parke, Davis & Company* has reported record first-quarter sales and earnings for the first three months of 1958. The world-wide pharmaceutical firm said net sales for the first quarter this year totaled $42,871,094, while earnings for the same period totaled $7,139,647.

This represented a 13.5 percent increase in net sales and a 27.5 percent increase in earnings over the first three months of 1957. These 1957 earnings were greater than any previous first-quarter earnings in the company's history. The previous record for first-quarter sales was established in 1952 with a total of $38,783,913.

ADVERTISERS

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